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HERNIA OF THE OVARY, APPENDIX AND DIVERTICULUM WITH ABSCESS.*

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The following case is presented on account of some points which are apparently of unusual interest. The patient was a woman, age 40, married, and the mother of six children. She is of Swedish parentage, very intelligent, but always had to work very hard.

I was first called to see her in the night. She gave the following history: Had been subject to attacks of pain in the right inguinal region accompanied by the appearance of a small tumor. This tumor was evidently a hernia. This was the first time that she had called a doctor on account of the attacks. She had learned by experience that by lying on the back with the hips elevated the tumor would disappear, and within an hour or two the pain would also subside.

The present attack began in the early morning in the usual way, but did not yield to her habitual plan of treatment. The pain had grown steadily worse until it became unbearable and demanded the services of a doctor. Examination showed a small inguinal hernia which was exceedingly tender to the touch and could not be manipulated. It had persisted for eight hours. During that time the bowels had moved freely. After trying several measures of posture and taxis without success, an anaesthetic was administered and after considerable general manipulation a part of the tumor disappeared. After the patient recovered from the anaesthetic, however, she was not completely relieved and a part of the tumor remained. She said that heretofore the tumor had entirely disappeared.

She was removed to the Hospital the next day, but by that time she thought she was improving and refused to consider operative interference. By the second day she was still further improved and sat up. She said that she thought she would be entirely well in a few days. However, the small tumor which was tender and somewhat painful did not disappear. The pulse and temperature remained normal throughout the whole attack. On the fourth day she was up and around the Hospital, and said that with the exception of slight tenderness she was entirely well and insisted on going home the next day.

I finally, with the assistance of friends prevailed on her to submit to an operation for radical cure, assuring her that to go home would only mean a repetition of the attacks and finally bring her to operation. It was my opinion that a small portion of omentum had become entangled and adherent in the hernial sac and could not be reduced.

She finally consented and operation was undertaken. At this time as throughout the attack the temperature was normal and the pulse 72 and of good quality. After careful preparation an incision was made over the small tumor in the line usually adopted in operating on inguinal hernia. The sac was examined and opened. It contained a small mass about the size of the end of one's thumb which evidently did not belong to any of the structures usually found in inguinal hernias. It had somewhat the appearance of omentum which had been much changed by inflammatory action. It could not be differentiated immediately. Passing the finger around behind this mass to loosen it up a considerable cavity was accidentally encountered from which a quantity of dark and very offensive pus was discharged. This cavity was carefully cleansed with peroxide of hydrogen and hot normal salt solution.

After getting rid of all the pus the walls of the cavity were carefully examined with the finger. On the upper side the finger encountered a soft projection into the cavity

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which had somewhat the form and feeling of the finger of an old kid glove. Its distal extremity was entirely free but closed. This was Meckel's diverticulum. Its walls had begun to undergo necrotic changes. The portion of gut from which it sprung was loosened up and an effort made to remove the diverticulum and close the opening. The walls of the gut itself were in such bad condition from contact with this pus cavity that it was impossible to make the sutures hold and thus close the opening from the diverticulum. This necessitated the removal of several inches of the intestinal wall in order to secure healthy tissue for making a closure of the gut. About six inches of gut were resected and an end to end anastomosis made with the Murphy Button.

Further examination of the cavity showed at the bottom, on the right side, an inflammatory mass which when loosened up proved to be the vermiform appendix. The end of the appendix was gangrenous and ruptured. The appendix was removed in the usual way. Returning now to the original small mass which formed the visible small tumor and loosening it up and following it to its base, demonstrated it to be the right ovary. The fallopian tube was lying just below it and next to it. The end of the tube was also gangrenous from lying in the pus cavity and the ovary was so disorganized from long pressure that it was necessary to remove both tube and ovary.

On account of the septic nature of the cavity it was deemed best to establish through and through drainage. Consequently, an opening was made behind the uterus and drainage gauze passed through into the vagina. The external wound was partially closed. No doubt this through and through drainage had much to do with the rapid recovery which the patient made. During the five days which I observed the patient prior to operation she had no rise of temperature or acceleration of pulse, nor was there any material rise of temperature or acceleration of pulse following the operation.

Thus what seemed to be a small incarcerated hernia proved to be a hernia of the ovary overlying a gangrenous appendix with walled off abscess; the walls of the abscess cavity being made up of the coecum, the ileum and the right tube and ovary with Meckel's diverticulum protruding into the cavity. The patient made a very rapid and complete recovery, although she has to wear a truss on account of the weakened inguinal region. This case brings up the query as to whether or not a careful vaginal examination would not have aided in clearing up the diagnosis, or at least in putting us on our guard somewhat as to the complications. However, it seemed entirely unnecessary on account of the plain history which the patient gave of hernia, and from the fact that she had no rise of temperature or acceleration of pulse or other symptoms which would indicate an inflammatory condition.

It is somewhat of a puzzle to know just how this case should be classified. My own idea is that it was originally a case of hernia of the ovary. This is a rare condition. Howard Kelly in his work on "Operative Gynecology," reports to have seen only two cases. There is one point which should put one on his guard: namely, the extreme sensitiveness of the tumor. This is a diagnostic sign which should not be overlooked. Another important symptom of cases of hernia of ovary is increased pain at the menstrual period and the enlargement of the tumor at that time. These symptoms were not present in my case. Kelly would seem to believe, although his wording is not quite clear, a hernia of the ovary and tube is always congenital but that we may have an acquired hernia of the tube.

Hernia of the appendix is by no means as rare as hernia of the ovary. I have myself encountered the appendix three times in hernias. Twice in femoral hernia and once in inguinal hernia. A large number of observers have reported cases of hernia of the appendix. Mr. Eckles has published twenty-nine cases, sixteen of which were inguinal and thirteen femoral. Two of the inguinal hernias were on the left side. In only two of his cases was the appendix accompanied by other viscera. Combining the statistics of several reporters it would seem that the appendix is found in sac in about 1½% of cases of hernia. The presence of Meckel's diverticulum is of course much more rare.

It consists of the vitello intestinal duct, which has become absorbed, but persists as a part of the small intestine. The blind pouch thus formed is known as Meckel's diverticulum and may vary from a mere pit on the intestinal wall to six inches in length.

In this case the diverticulum was about nine inches from the coecum and was about 3½ inches long and about the size of ones little finger. There seemed to be no narrowing of the lumen of the gut at this point, and I regard the presence of the diverticulum as simply an incident of the case. It had lost its terminal ligament and was entirely free in the pus cavity.

Analyzing the case more specifically it was evidently one of hernia of the ovary and if Kelly's theory is correct, was of congenital origin, this was complicated by the presence of the appendix which became gangrenous, ruptured, and produced the usual appendical abscess in the hernial opening. The presence of the diverticulum was only an incident. The disorganization of the diverticulum and intestinal wall was caused by the contact with the abscess caused by the ruptured appendix.

THE INDICATIONS FOR THE USE OF THE TAMPON IN THE TREATMENT OF POST-PARTUM HEMORRHAGE.*

BY C. S. BACON, M. D., CHICAGO.

During the last few years the use of the intra-uterine gauze tampon in the treatment of post-partum hemorrhage has become quite general until now tamponade is often employed indiscriminately for all kinds of hemorrhage following labor. Its prophylactic use has indeed been recommended for cases where for any reason a hemorrhage may be anticipated. I believe there is a tendency toward the excessive use of this method of treatment. Unless a tampon be sterile and its introduction aseptic it is likely to cause a serious infection. The technic of a proper intra-uterine tamponade is not so extremely simple in the urgency of a frightful hemorrhage especially when one is without a good assistant. Hence it seems to me desirable to consider anew the treatment of post-partum hemorrhage so far as necessary to determine the proper place for this popular therapy.

All post-partum hemorrhage is due of course to rupture of vessels and so in a sense is traumatic whether the vessels are in the placental site or in a lacerated cervix or vagina. However, since the rupture of the placental vessels is necessary and physiological while laceration is not we may call hemorrhage from the former non-traumatic and from the latter traumatic.

The term non-traumatic hemorrhage comes to include hemorrhage due to a variety of causes some of which have not received sufficient attention from most writers in the past. In a paper read before this Society at its Quincy meeting last year I enumerated the most important factors contributing to non-traumatic hemorrhage. They were: 1st. Lack of normal vascular contractility; 2d. Deficiency in coagulability of the blood either inherited or acquired; 3d. Partial or complete failure of the uterine muscles to contract and retract and thus close the uterine vessels. This failure may be due to weakness or exhaustion of the muscles or to inactivity of the intra-uterine ganglia. The whole musculature of the uterus may be affected or limited areas like the placental site or the lower uterine segment alone may be involved; 4th. Temporary increase of blood pressure, such as for example might be caused by mental excitement.

Without repeating again the study of each of these factors I will only remind you that any or all of them may also influence or complicate traumatic hemorrhage especially that from the cervix. For example a hemorrhagic diathesis will of course affect the hemorrhage from any laceration.

Now let us consider the means of counteracting each of these factors with especial reference to the advantages or disadvantages of the tampon. It is presumed that all hemorrhage is permanently stopped by the closure of the ruptured vessels with permanent clots. It must also be noticed that a lasting mechanical compression of the vessels by means of a tampon is hardly pos-

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sible within the uterus. If we should rely upon mechanical compression alone more than 100 yards of gauze would be required to distend the uterine walls and mechanically close its bleeding vessels. We must rely on the contractility of the uterine muscles. In tears of the cervix and vagina it is perhaps possible to make sufficient pressure with a tampon to close ruptured vessels. This is true at least of small vessels and furnishes an indication for the use of the tampon as we shall see when we come to speak of traumatic hemorrhage.

I do not know that the presence of gauze in the uterus causes its vessels to contract. The presence of hot water of a temperature of 120° will have this effect. The local application of astringents and adrenalin has the same action. This is also the action of ergot administered internally. The contraction of the vessels is of course an important factor in diminishing and stopping hemorrhage both from the placental site and from lacerations. The gauze tampon has little or no influence in this direction.

The cases of blood dyscrasia where the coagulability of the blood is nearly or entirely lacking are rare but very serious. Here neither the hot douche, the gauze tampon or ergot have any effect. Only a styptic or some substance of remarkable coagulative powers like gelatin can be of use. A tampon as a carrier of a styptic or gelatin furnishes us probably the best means of carrying these substances to the bleeding parts.

When the blood is normal might it not be of advantage to hasten its coagulation? I do not know whether the presence of gauze in the uterus would be of any value in hastening the coagulation within the vessels. Certainly it would have no more effect than the pressure of blood clots in the uterus. The douche which removes all clots from contact with the opened vessels would probably have no effect in this direction. The question is however unimportant for the plugging of the vessel follows its closure and is probably uninfluenced by conditions external to the blood vessels.

The fourth factor contributing to postpartum hemorrhage, namely, the increase in general blood pressure, caused by mental excitement will of course be unfavorably affected by disturbances caused by tamponing. Not only the necessary moving of the patient but also the anxiety and pain caused by the manipulation may so increase the bleeding as to unfavorably affect the case. For this reason the least disturbance possible is best.

There now remains to consider the effect of the tampon and of the other hemostatic measures in stimulating the uterine muscle to contract. Without firm and continuous contraction of the uterus and closure of its cavity hemorrhage is inevitable after expulsion of the placenta. So long as the placenta remains attached its vessels are not ruptured and no bleeding occurs. When its central part alone is loosened and its margin remains adherent we have the well known retro-placental hemorrhage. When the edge of the placenta is loosened external bleeding occurs which lasts until the placenta is expelled. The presence of the placenta or a portion of it in the uterus generally prevents its efficient contraction and retraction.

The same is true of a foreign body, a blood clot, the hand, a tampon. The foreign body may stimulate the uterine contractions and so be of use but no doubt its presence prevents the thorough closure of the vascular trunks and just as far as this is true interferes with the mechanism of hemostasis.

The mistake is often made of comparing the uterine tampon with the Miculicz surgical tampon of the abdominal or pelvic cavity or with tampons used to control hemorrhage of the nose. In these cases we have cavities with undistensible and inelastic walls and the tampon acts mechanically to compress the bleeding vessels. In case of the uterus with changing contractile walls as previously said we should have to use an enormous quantity of gauze to fill the uncontracted uterus. Hemorrhage from the ordinary surgical cavity is controlled by ligature or mechanical compression of large trunks and by spontaneous closure of smaller vessels through vascular contractility. In the postpartum uterus, we have very large ruptured vessels. Patent vessels of this size emptying into a surgical cavity would cause fatal hemorrhage in few minutes or seconds.

They are closed more or less completely by the contraction and retraction of the uterine walls. This contraction is perfect only when the uterine cavity is obliterated. In so far as any foreign body prevents this it is harmful.

It appears then that the sole function of the uterine tampon is to excite uterine contractions. It thus acts quite differently from the Miculicz tampon which mechanically closes bleeding vessels. It is a drawback to the uterine tampon that its presence in the uterine cavity prevents complete contraction and interferes with the ordinary mechanism of hemostasis. The fuller the uterus is packed the greater is the interference. This drawback is often or generally spontaneously overcome by the expulsion of the tampon from the body of the uterus into the cervix.

The efficiency of the uterine tampon therefore depends upon its power to excite uterine contractions and its value must be determined by comparing it with other measures having the same object. Whatever effect it may have in mechanically closing vessels must depend upon the pressure exerted by contracting walls. That the tampon is a powerful uterine stimulant there is no doubt. Are there other measures equally efficient and less objectionable?

The three agents to be compared with the tampon are, massage, both abdominal and combined external and internal, ergot, and the hot douche.

Ergot given in large doses hypodermically is very valuable and for permanent effect invaluable. External abdominal massage is often sufficient and with the administration of ergot to be preferred to all other measures because it does not involve any danger of possible contamination of the genital tract. Combined abdominal and vaginal massage is perhaps somewhat more efficient but not equal to the hot douche and only to be used when the latter is not in readiness.

The efficiency of the hot douche in stimulating uterine contractions is but little if any behind the tampon to which it is to be preferred on account of its manifest advantages. Its administration is much simpler and less painful while it does not involve the risk of contamination that pertains to the latter. It is not my purpose here to describe the technic of the hot douche which was given in detail in my paper last year. I will only insist upon the absolute necessity of complete preparation beforehand involving the securing of an unlimited quantity of hot and cold sterile water, pitchers for mixing, sterile thermometer for determining temperature which must be 120°, irrigator in place and rubber sheet to carry water into a receptacle. The douche is often condemned because it is not given properly. It must be given continuously and for a long time if necessary. The water must be hot enough. Nothing is more dangerous than changing from one measure to another. So much confidence have I in the efficiency of the douche combined with external massage and ergot that I am willing to trust to those measures in all cases of atonic hemorrhage from the site of the normally situated placenta.

The case is different however when the hemorrhage is from a placental site located in the lower uterine segment that is in placenta previa. The contraction of this zone is, as is well known, often incomplete and insufficient to close the large vessels of the placental area. Added to this is the frequent presence of laceration due to the trauma of operative delivery. This is one of the reasons that such a large number of fatal cases of post-partum hemorrhage are in cases of placenta previa. Of course the fact that the patient has lost much blood in the early stages of labor also has a bearing on the high mortality.

In the postmortem examinations of these cases we find the fundus of the uterus contracted into a thick cap of muscle sitting on the uncontracted tube of the lower uterine segment. This fact suggests the treatment Tampon firmly the lower uterine segment, relying upon the contraction of the fundus to furnish sufficient counter resistance. The tampon acts here not only to stimulate contractions but also to mechanically compress the vessels in the cervical tube which here resembles a surgical cavity.

The proper treatment of laceration is by the suture. Hemorrhage from laceration in the vulva and vagina should always be con-

trolled in this way. The repair of bleeding cervical lacerations is somewhat more difficult but would better be done. Not only is this the proper surgical way to control hemorrhage but the closure of the lacerations leaves the uterus in better condition and less liable to rupture in a subsequent labor. However in the absence of preparation or proper assistance perhaps the tampon may be allowed to stop hemorrhage from laceration. It here acts in the same way as in placenta previa. Reliance is had on the contraction of the uterine fundus to furnish counter pressure. One must always be conscious of the danger of increasing the tear in applying the tampon.

As the outcome of our study of post-partum hemorrhage we may then conclude that the tampon may be used.

1st. As a carrier of styptics or agents to cause coagulation of the blood in cases of inherited or acquired hemophilia.

2d. To control post-partum hemorrhage after placenta previa.

3d. To control bleeding from cervical lacerations when surgical repair of the lacerations is impossible.

Discussion.

Rudolph W. Holmes: Mr. Chairman—I am a great exponent of the uterine tampon. I have used it repeatedly, and I am positive that the uterine tampon is more effective than the douche in certain cases as Dr. Bacon is that the douche will answer in all cases of uterine atony. I do not believe in introducing the tampon at first. There must be preliminary manipulations, massage, the use of ergot, the douche, if the case permits it; but where there is an alarming hemorrhage, the assistant, the woman who is present, can do the massage, and at the same time, support the fundus, and introduce the tampon at once. You are sure there is not going to be any further trouble. I believe in introducing the tampon early. I practice it. If I suspect there is any possibility of hemorrhage occurring later, I put in a prophylactic tampon. If I have a case where there is manual removal of the placenta, where a midwife may have been in attendance, if the woman has been in labor long, and the attendant or I have been in attendance, it is much safer to put in a tampon, because I know it is prophylactic. In women who have a breech extraction there is a tendency to atony. The tampon prevents it. The douche, nor more than the tampon, can coagulate blood in the uterine sinuses, although both will produce their effects by contracting the uterus. The tampon is as much a stimulant to contractions post-partum as the rubber bag, or the catheter to induce labor in pregnancy is just as effective. In inertia it is the best stimulant possible. In cervix tears that extend high up, it is difficult, unless you have hospital facilities, to repair them, and if you do not get your suture in at the upper angle of the tear, you will get hematoma in the broad ligament, and the tampon is the best thing for such a case as that.

The douche is absolutely contraindicated in my mind in a case of tear of the cervix, or in a case of placenta previa, because there is not sufficient contractility in the lower uterine segment to produce contractility with the highest stimulation.

As to the expulsion of the tampon into the cervix, I have tamponned thirty times now, and I have never yet found one tampon that was expelled from the upper segment into the lower. You have a positive criterion as to the effect if such occurs. The first part of the tampon, as you remove it, comes out with ease, that portion in the vagina, the cervix, and lower uterine segment. The moment you come to that part of the gauze that has to go through the traction ring, there is difficulty, and you meet with considerable difficulty before you can pull out the tampon. I have never yet found but one case where it was difficult to withdraw that part of the tampon from that part of the segment of the uterus. All the effects of the tampon are less unless the whole utero-vaginal tract be tamponned. It is exceedingly dangerous to tampon the lower uterine segment without tamponning the upper, because there is a normal secretion from the placental site where blood will accumulate, and you have no stimulation, and the uterus will relax behind the blood. In the last year and a half I have tamponned eighteen times with an instrument, which is the safest and cleanest for tamponning the uterus. It is possible with that instrument to insert gauze into the uterus and vagina without coming in contact with living tissue. It is unnecessary for the hand to touch the gauze. It is a tube twenty-eight centimeter's long, eighteen millimeter's wide, with its caliber slightly curved to conform as much as possible to the pelvic curve. It is introduced into the uterus with obturator, the obturator is withdrawn, the gauze is picked up with forceps, passed into the proximal end, and with the introducer, a steel rod with three prongs pointed, you rapidly push it back and forth, so that the gauze is carried into the uterus. When the gauze is in the uterus, the tube itself will come out. It is the only method of introducing the tampon without any possible source of contamination. With the methods of Duhrssen and Schauta and their modifications, it is absolutely necessary for the gauze to slide over the vulva and over the vagina. Latterly, I have been considering the use of non-absorbent gauze, and the more I think of it, the more preposterous it seems to me, that a man, who tampons a womb for the purpose of drainage, uses practically the same gauze that he does for the purpose of arresting hemorrhage. The man who has a pus cavity to deal with must use absorbent gauze. Gauze has a merited place in obstetrics as well as in surgery. I have considered and tried various things. Gelatin is one of the best, because it is hemostatic. But calcium chloride, as stated, acts on the principle of gelatin for hemostasis, and gelatin is a cul-

ture medium. Calcium chloride, 1-500 or 1-1,000, will be just as efficient as a hemostatic as gelatin, and you have in addition the fact that it is not a culture medium.

Joseph B. De Lee, Chicago: This subject of the tampon is one that Dr. Bacon and myself have discussed together in private and many times before various State and local societies. In fact, I may say that we are divided into tamponners and anti-tamponners. I think the whole subject rests on the decision as to what is a post-partum hemorrhage. Some accoucheurs are not afraid of hemorrhage; others are frightened at the sight of even a small amount of blood. I am willing to confess that I belong to the latter class. Experience, by no means a velvety experience, has made me very tender at the sight of blood. Things occurred that indicated to me that hemorrhages post-partum even slight ones were serious affairs. In those cases I have treated with dilatory methods and have finally succeeded in controlling the oozing, the patients were a long time in getting up. They would occasionally have a slight rise in temperature when there was absolutely no indication to its cause. These women had a small amount of milk, and the babies did not thrive well. They were subject to fainting spells, and had to be sent into the country for five or six months.

Another indication that a small amount of hemorrhage is one of dignity, was the occurrence of nervous conditions in women of the higher classes—neurasthenic conditions, and in one case of quite severe hemorrhage, with a nervous weakness or neurasthenia, which has persisted up to the present time.

Another reason which made me fear small hemorrhages was the fact that if I did not stop the hemorrhage right soon, what I considered at the start a mild hemorrhage, it was not long before I had a case of severe hemorrhage, one which would require my best efforts and would throw me into a state of anxiety about the future of the patient. It is true, that these women recovered from their hemorrhages and resumed their duties. That this is not true of all cases, I do not need to bring to your notice, and that women die of post-partum hemorrhage is a fact. Where one allows a slight hemorrhage to gain headway, there is greater difficulty to stop it, and greater anxiety on the part of the physician, and therefore less chance of the woman making a healthy and rapid recovery. For these reasons and for others, which I have not time to mention, I have come to the conclusion that all cases of post-partum hemorrhage should be stopped at the start. They should not be allowed to progress to a dangerous stage, and that we should not wait with our dilatory, uncertain, time-consuming, and blood-letting methods, but should at once resort to a method which will control the hemorrhage, which is radical, permanent and safe.

When I first began the practice of obstetrics exclusively, I was of the opinion of the essayist that the tampon should be reserved for the smallest number of cases and should be left as a last resort. But the continued use of the tampon demonstrated to me the ease of its application, the certainty of its action, and the quieting effect which it had upon the accoucheur after it was applied. Mental quietude in an accoucheur, perhaps, is not an indication for any operative procedure. It has, however, weight with myself, if no one else has acknowledged it.

As to the points in the paper, the doctor said that the constriction of the blood vessels of the uterus is a very important part in the hemostasis. That is true. But it is not the constriction of the blood vessels themselves; it is the constriction of the blood vessels by the uterine wall. We must get contraction of the uterus to stop the hemorrhage from the vessels. Placental site vessels have no contracting tissues in their walls, but are open sinuses or spaces between the muscles, lined by a single layer of endothelial cells, and have no contractile power. The use of a hot douche in stimulating these vessels to contract is absolutely inert. That the uterine douche might stimulate the large arteries along the uterus which have muscular coats to contract may be admitted, but the effect certainly will likewise be admitted to be rather minimal. I might say incidentally, the tampon under this heading, by raising the uterus from the pelvis, produces a free and easy circulation in the venous system, and allows therefore the blood to escape from the pelvis, relieving congestion, and thus preventing a hemorrhage from congestion.

A second point in the use of the tampon. It was denied that the use of a tampon could exert any pressure against the open vessels, and thus stop hemorrhage, and the assumption that the uterine tampon resembles a Mikulicz drain or tampon is unfounded. I have never seen a Mikulicz tampon applied with sufficient force to compress the blood vessels against the side wall of the pelvis. It is, in most cases, the mere apposition of an irregular surface, the gauze being pressed against the bleeding surface, that favors and invites, by mild compression and capillarity, the accumulation of exuded blood between it and the tampon, and the first meshes of the tampon. I have seen a Mikulicz tampon applied against a bleeding surface on the sigmoid, and in the thick fibrinous deposits that occur in a certain low grade of pelvic inflammations. Likewise, I have seen it applied against the surface left by tumors that have been peeled off of the surface of the intestines in the pelvis, and in these cases the Mikulicz has stopped the oozing from the surface. The explanation is not right, that the Mikulicz tampon stops hemorrhage by the application of pressure against the blood vessels and counter-pressure by bony surface. Therefore, the action of the uterine tampon may be likened to the action of the Mikulicz when the tampon is applied in the uterine cavity. Furthermore, the action of the gauze is a powerful sitmulant. It does not act like the clot in the uterus. All of you have seen cases of women who have had a clot in the uterus that has kept on oozing for hours, and during which time the obstetrician has kept on worrying for hours. If he would clear out that clot, the oozing would stop for a few minutes, when it would begin again, and the uterus would assume a rather elastic, boggy condition, which meant that another clot had formed, and the oozing would

cease temporarily. The woman in the meantime is running the danger of acute hemorrhage, and it would not be surprising, after the obstetrician had gotten home, and into bed, if he was recalled by the expulsion of the clot and, succeeding it, a hemorrhage. The tampon applied to the uterus is a firm irregular structure, which stimulates the uterus better than a soft mushy clot. It is a matter of clinical experience that the tampon does exactly what I have said it does. It does stimulate the uterus to contract. The uterus under the use of the tampon becomes a hard, firm tumor in the pelvis. The woman suffers from after-pains, and, as Dr. Holmes has said, the gauze is gripped by the uterus so firmly that it requires considerable traction to withdraw it. The use of the douche in post-partum hemorrhage is opposed to the tampon. The tampon is a certain, quick, rapid, method of stopping hemorrhage. The douche is a more or less certain, slow method of stopping hemorrhage. The douche washes out the clots in the blood vessels, operating against the condition we wish to produce.

The prolonged douche has begun to be recognized as a weakener of uterine contractions. Those of you who wish may try the experiment of a solution of salt water upon any mucous surface. The first effect is a blanching of the surface, and contraction of the vessels. If you continue the use of this salt water on the surface, within a few minutes you will notice dilatation of the vessels and acute congestion. This is not original with me; it is to be found in some German textbook. The douche, if given at all, should be of short duration, and discontinued after from sixty to ninety seconds. The first effect of the douche is to stimulate and contract; its prolongation is one of production of relaxation.

As to the safety of uterine douche as compared with the tampon, it is a relative matter. If a man is skillful in his surgery, he ought to be able to apply the tampon to the uterus postpartum aseptically and successfully.

The next point I wish to touch upon is the use of the tampon in placenta previa, and a constant preference for the douche before the tampon in cases of hemorrhage. Do we know, does every practitioner know that the placenta in a given case has been inserted high in the uterus, and that therefore the hemorrhage comes from the placental site only. If the placenta is inserted rather low in the uterus, near the internal os, or perhaps a little below it, it is not sufficient to make a diagnosis of placenta previa, but it is sufficient to put the placental site out of the district of active and successful contraction of the uterus. Therefore, in using the douche, it is a rather blind measure which may strike the seat of the hemorrhage. On the contrary, in these cases the use of the tampon, as alluded to by the essayist, will stop the hemorrhage, whether it comes from above or below the insertion of the placenta. There are cases of hemorrhage from the lower uterine segment without any visible injury of that segment. I have seen such cases, and Maygrier, a Frenchman, has written of several such cases, in which he has found that no laceration or other injury could either be palpated or seen by the speculum. These cases present lacerations that are too small to be seen, but which produce hemorrhage in the vascularized lower uterine segment.

The next point is with reference to the use of non-absorbent gauze. That is a very reasonable suggestion, and one which I intend to carry out when the Doctor succeeds in getting a marketable preparation. I have in the past been very successful in stopping post-partum hemorrhages by the use of gauze prepared as follows: Sterile gauze is used. The gauze is made into a strip so as to be half a yard wide, and thirteen yards long with the edges folded in; it is then boiled in a half per cent lysol solution, which is a non-poisonous antiseptic, drawn through a clotheswringer, packed in sterile jars, thirteen yards being packed into each jar, and it is carried in the satchel without any trouble. These jars are sterilized in the Arnold sterilizer or in a wash-boiler, and are sterilized every day for an hour or two for three days. This gauze is absolutely safe, and it has proven in my hands to be successful in stopping post-partum hemorrhages.

When a woman after labor begins to bleed, the first attempt should be to remove the placenta and to get the uterus to contract so as to stop the hemorrhage. If, within a few minutes, by brisk massage of the uterus, the organ does not contract, and the hemorrhage keeps up, the placenta should be removed. If, after the placenta has been removed, the hemorrhage keeps up, brisk massage and the administration by the mouth or hypodermically of ergot should be practiced; then the use of the hot douche if it is ready. If it is not ready, the patient is put across the bed or table; the uterus is cleaned out; the hand put in, and the uterus rubbed thoroughly over the fist. This should stop hemorrhage at once. If there is a laceration, it is determined, and proper treatment instituted. If that does not stop the hemorrhage at once, before the pulse goes up, the uterus is packed tightly from above downward, and the vagina likewise packed. Then the woman is considered safe. There is one exception to that, as there is a condition in some patients in which this treatment is unsuccessful in stopping the hemorrhage. I refer to hemophilia. I am convinced that there is a temporary hemophilia. As evidence of that, I have reported cases where syphilis was the probable cause, and cases where malaria was the probable cause, and continued hemorrhage undoubtedly produces a condition of temporary hemophilia. That jaundice can produce a temporary hemophilia or hemorrhagic diathesis, we all know. In these cases of hemophilia the tampon will not always stop the hemorrhage; but in one case in which I was unsuccessful in stopping hemorrhage with the tampon, a case of hemophilia, the woman bled not so much through the tampon, as she bled into her own tissues. Large hematomata were formed around the vulva in the subcutaneous tissues. A hypodermic injection of strychnine produced a large hematoma. There are some cases in which the appearance of the blood suggests to the accoucheur that he has to deal with a dyscrasia of the blood, something that is abnormal

in the blood. For example, watery blood in which there are black clots floating, where the blood resembles red brick dust in color. In other cases I have seen the blood was of lake color, that is, transparent, as if there was a solution of the blood, and not an emulsion of blood corpuscles, where there was no hemophilia, or where perhaps there may have been a temporary hemophilia. I have soaked the tampon in sterile gelatine solution, but whether the gelatine acts simply because of the calcium chloride it contains I leave untouched, because I do not know. I could cite cases proving that gelatine does stop hemorrhage.

Finally, the best argument for any procedure is the effect of its application. I do not know how many cases I have tamponed. I am looking through the records of nearly seven thousand cases, and it is difficult to pick out those cases I have tamponned. I may have tamponned between seventy-five and a hundred cases, and there have been only three or four cases that have had fever. The hemorrhage was stopped in every case, except in three or four, by the first tampon. In those cases in which the first tampon was not successful in arresting hemorrhage, the second tampon was impregnated with gelatine or without it. In these the hemorrhage was arrested and the patient made a happy recovery. I will grant, I tampon in a good many cases where other obstetricians would not do so.

Edward H. Ochsner, Chicago: I should like to ask the essayist whether the systematic use of calcium chloride has been adopted in the practice of obstetrics. I know in the practice of surgery we have learned from Mayo Robson that calcium chloride is an extremely valuable adjunct in the prevention of hemorrhage.

Dr. De Lee has spoken of cases of syphilis and of malaria, in which there were small repeated hemorrhages, and said these cases could have been operated on with a degree of comfort and safety. I have repeatedly approached a case of anemia, where an operation had to be performed, with a great deal of fear and trepidation. Since the introduction of the logical use of calcium chloride by Mayo Robson, of Leeds, England, these cases can be treated with a great deal of comfort, and in spite of this extended discussion I have not heard today the systematic use of calcium chloride in the cases of temporary hemophilia that have been mentioned. The use of thirty grains of calcium chloride for three consecutive days, three times a day, making 270 grains, will prevent a recurrent hemorrhage from such cases. The most common form of temporary hemophilia the surgeon encounters is caused by cholemia, and in these cases hemorrhage can be permanently stopped by this simple method, and I should like to ask the essayist again whether this remedy has been used systematically in obstetrics.

Dr. Bacon (closing the discussion): As Dr. De Lee rightfully says, the most important question is, what is hemorrhage, and when is it alarming? It is rather difficult to get at statistics as to the frequency of fatal hemorrhages, the ratio given being from one in a thousand to one in ten thousand cases. Perhaps it is a liberal estimate to say that there is a fatal case of hemorrhage in every two thousand cases of labor. It is probably true that there are hemorrhages which are alarming, at least in ten times that number of cases; that is, in perhaps every two hundred cases. Then there may be excessive discharge of blood (which can be called a hemorrhage), in perhaps ten times as many cases, but if there is a hemorrhage that would be called anxious in one case in two hundred, we have something to go by. My contention has been that there are few of these cases, particularly those cases that follow placenta previa, where the tampon is of value, and in the majority of these the tampon is not necessary.

When Dr. Holmes says that he has tamponned in the last year and a half 18 times or more, if he has tamponned simply the serious cases, and of which only one in ten would have resulted fatally any way, he has treated approximately 3,600 cases. I do not know anything about the number of cases he has treated, but I think the computation goes to show that he is using the tampon in a great many cases where it is unnecessary. That is what I contended at the start.

Dr. De Lee has given figures, but is unable to give us an estimate of the percentage of cases which he has tamponned. He has treated over seven thousand cases, and tamponned about 75 or 100. His tamponning has been practiced in later years, because he previously used the douche. He is tamponning now in more than one case in seventy. This shows that he also is tamponning too much.

The dangers of the tampon have not been alluded to by those who have taken part in the discussion, and I shall not take the time of the Society to go into them to any extent, but I must repeat that the tampon is not without danger, that it is a source of danger when applied in the urgency of an excessive hemorrhage. It is a source of danger in anybody's hands, but surely more so in the hands of those who are not prepared with the best facilities and assistance. The danger, however, is not so much in the tampon itself. The tampon should be made sterile. The danger of contamination of the tampon is in its application. We cannot sterilize the vulva. We know if the vulva is not sterilized, if we introduce the tampon we carry it along through the opening of the genital tract, and introduce germs to the inside. We recognize that particularly when we make an examination and we try to avoid it as much as possible. In our attempts at sterilization we separate the labia and make every effort not to carry any germs from the vulva into the vagina, but it is impossible to take such precautions with the tampon. The tampon is introduced into the uterus and left there for hours. The finger in the examination is introduced into the vagina for only a moment or two, and there is a discharge at the time which washes away any germs that may be taken in, so there is a decided danger in the introduction of the tampon from those sources, and no doubt most of the unfavorable after-effects in cases of hemorrhage are due to the infection that goes on, and has been introduced at the time the

tamponning is done. Moreover, the introduction of the tampon almost always leads to a certain amount of danger, tearing of the cervix by the forceps when the cervix is grasped. I have had it happen to myself that the forceps are simply pulled out, and we grasp again, pull again, and as a result get a number of slits in the cervix, making new wounds, which is not a matter of absolute indifference, so that the dangers of the tampon must be emphasized.

I shall not have time to take up in detail the objections that were made, but I would like to say, in regard to Dr. Kolischer's remarks, that I think the impression must be left that his remarks furnish one of the best supports of my position, namely, that the tampon is not very efficient, but is rather dangerous. He called attention to the importance of anteflexion of the uterus, because the tampon is not efficient. The importance of anteflexion of the uterus is great, but that is in the early stage of labor, and before the tampon is introduced. The muscles are compressed in that way.

Coming to the remarks made by Dr. Ochsner, I must answer his question. Of course, I did not go into the subject of prophylaxis of post-partum hemorrhage, nor the treatment of later hemorrhage, but in those cases where there has been hemorrhage formerly, where there was a suspicion or exhibition of hemorrhage, it was advocated, and I advocated last year in my paper, that calcium chloride should be given beforehand, and particularly in later hemorrhages it is undoubtedly of value.

UTILITY OF INTESTINAL ANTISEPTICS IN TYPHOID FEVER.*

BY N. S. DAVIS, JR., A. M., M. D., CHICAGO.
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Students of medicine were convinced before the 19th century had run two-thirds of its course, that typhoid fever was generally transmitted by contaminated drinking water. In 1880, Eberth isolated the bacillus typhosus, a micro-organism which was soon shown to be abundant in the intestines, in their wall, especially in the adenoid structures, also in the mesenteric glands and spleen, and to occur rarely in other tissues. It was not until very recently, however, that it was found in the blood in any considerable number of cases.

The symptoms and anatomical changes which develop in the course of typhoid fever are due chiefly to chemical toxines, which are generated by this bacillus. It seems probable that the micro-organism when collected in one place may provoke congestion, necrosis and inflammation, but often secondary infection plays a part in producing the grosser changes of the disease. Therefore, to understand the treatment of typhoid we must appreciate that we have chiefly to do with an intoxication, to some extent to deal with a general infection, and at times with a secondary infection by other organisms. Therefore a physician, when treating a case of typhoid must aim to either neutralize the toxine or effect its rapid elimination, or stop its generation. If these objects of treatment cannot be perfectly accomplished, the effect of the poison upon the nerve centers and other tissues must be combatted. We can not meet the first indications at all perfectly, therefore the most important elements of treatment are protective rather than directed to cut short the malady.

Can we prevent the formation of the toxine? This means can we destroy and eliminate the typhoid bacillus. The question must be answered in the negative. Antiseptics have been administered in many forms, hoping thereby to destroy the germs in the intestines. But a sufficiently large quantity of them cannot be taken with safety. Moreover, we now know that the microbe is rapidly disseminated through the body, or is deeply imbedded in the wall of the intestine, where it cannot be reached unless drugs are used in poisonous doses. Bacilli are probably never numerous in the blood, but they are most abundant there early in the course of the disease. For instance, they have been found in from 80 to 90 per cent of cases examined in the first week, and in 70% in the second, in 50% in the third, and in 25% later. When relapses occur they are again found in a large per cent of cases during the first few days. From these facts it is evident that intestinal antiseptics given as early as the disease can be recognized, are not likely to reach all of the micro-organisms which are about to create and maintain the malady.

The toxines of typhoid are not soluble like those of diphtheria, and tetanus but are a part of the substance of the bacilli. It has been suggested by Pfeiffer that organisms of this class set free their toxines only after their death and disintegration. If this is true, the inutility of antiseptics which de-

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stroy them is more readily understood. Of typhoid fever it is true that the symptoms become more grave while the organisms become less numerous in the blood as during the first days of the disease they are most abundant.

It is probable that the apyretic cases of typhoid are those in which the wall of the intestine is invaded, but for some reason the blood is not; and on the other hand, the cases, rarely described, without intestinal lesions, are those in which the blood has been invaded and in which the intestine has escaped.

However, intestinal antiseptics have a place in the present treatment of typhoid fever. They are useful, for they may limit the number of intestinal organisms of all kinds and the amount of putrefaction, and therefore of toxines generated by them, and may also lessen the danger of secondary infection through the wounds in the bowel which the disease produces as well as danger of reinfection of the blood.

Calomel was one of the first intestinal antiseptics tried. It is useful both because it is an important antiseptic and because it promotes elimination from the intestines. It is given almost exclusively during the first four or five days in which patients come under treatment. Later it is rarely employed, because it is liable to aggravate the intestinal catarrh which is a part of the disorder. I believe in this, as in most other acute illnesses, it is important to cleanse the bowels early, something which calomel accomplishes well and for which it can be commended. Occasionally it can be safely used later in the course of the disease for the relief of constipation, but as a rule enemata of water are efficient and much less likely to do harm.

Carbolic acid alone or combined with iodine was formerly much used. However, these drugs probably do not reach the intestines, but are absorbed from the stomach. They may help by inhibiting putrefaction or other fermentation in the contents of the stomach.

Drugs were sought which would be insoluble, or at least insoluble in the stomach, but would be efficient antiseptics, and iodoform, B. naphthol, betol, benzo-naphthol, salol, and others have been used, because in varying degrees they meet these requirements. None of them, however, materially lessen the duration of the disease, or render the contents of the intestine sterile. But several do make the stools less offensive. I find many practitioners still using salol. This I ceased to use in typhoid fever because experience taught me that it did not modify the course of the disease, and reason taught me that it must produce some of the ill-effects of chemical antipyretics.

Last summer and fall I experimented with a new intestinal antiseptic, acetozone, which was devised by Novy and Freer. They found it capable of making the contents of the intestines of animals sterile without harming them, but doses sufficient to do this have never been given to men. The drug was tried in typhoid fever by a few physicians a year earlier and was tested by many last summer. My first impression was that acetozone, when its use was begun during the first ten days of the illness, shortened the duration of the disease. But late in the fall, the severe, complicated cases came under observation, and they materially lengthened the average duration of the cases which were treated. However, the following statistics corroborate my early impression.

From July 1 to December 31, 1902, 59 cases treated at Mercy Hospital were given, in addition to the usual bath treatment, acetozone in solution in water, in the usual doses. Among the 59 there were two who died during the first three days of hospital residence, and before treatment could accomplish much. If we exclude them the per cent of fatalties is 10, or including them, 13. Twenty-one patients during the same months were treated in the same manner, but were given no acetozone. Of this number 2 who died might be excluded because of death almost immediately after entering the hospital, when the per cent of mortality would be 19, or if they are included, 21. These are unusually high mortality percentages, as the average for many years in this hospital has been less than 10 per cent.

Analyzing the statistics of those who recovered and who were given acetozone, I find that those admitted to the hospital during

the first week of their illness, averaged 21.25 days of fever, ranging from 9 to 33 days; those admitted in the second week averaged 31.5 days of fever, ranging from 11 to 83; those in the third week 34.7 days of fever, ranging from 20 to 58, and those admitted after the third week averaged 44.5 days of fever, ranging from 32 to 71. An analysis of the 21 who did not get acetozone is not as satisfactory because of the small number treated, but the results are: that those admitted in the first week averaged 28.6 days of fever, with a range of from 19 to 42; those admitted in the second week averaged 26 days, and ranged from 13 to 39; those in the third week averaged 41.5 days and ranged from 33 to 50; and those admitted after the third week averaged 54.4 days of fever and ranged from 28 to 81 days.

These statistics emphasize the value of systematic treatment begun early, but seem to show that the use of acetozone shortened the course of the disease. However, the number of patients treated is not enough to justify a conclusion. But the figures are such as to encourage one in the use of acetozone or of intestinal antiseptics as adjuvants to the bath treatment of this disease.

Acetozone does not produce visible effects. The stools look and smell as they usually do. It is given dissolved and largely diluted with water. Twenty grains are put in two quarts of water and a glass of the solution is administered every two to three hours. The drug gives the water a slightly pungent taste and odor. Often equal parts of medicated water and milk are given even more frequently. Taking so much fluid promotes elimination by the kidneys, which is a most beneficial effect. The drug may be also a diuretic.

At first turpentine was used in typhoid fever, because it was found to lessen tympanitis. Now it is regarded as useful as an intestinal antiseptic, as an astringent, and because it prevents and checks hemorrhage as well as relieves tympanitis. There is no other drug so well adapted to the needs of the intestinal tract in this disease. I have long used it in all cases as soon as the abdomen begins to be noticeably distended and tense. The only contra-indication for its employment is albumenuria. When the kidneys are seriously involved, turpentine will increase the trouble in them, and therefore it should not be used. I believe that the early and persistent use of turpentine lessens the liability to excessive tympanitis, diarrhea and hemorrhage.

Bouchard, regarding typhoid fever as an intoxication, produced by the absorption of soluble poisons generated in the intestine, advocated the administration of large doses of charcoal, which rendered the stools less offensive, diminished the tympanitis, absorbed many of the products of fermentation, and therefore caused their elimination from the intestines and prevented their absorption into the blood. But because, even when combined with intestinal antiseptics, it did not materially shorten the duration of the malady, it has not been generally used, although Bouchard's statistics were favorable, for the mortality was apparently lessened. Charcoal is however useful in those cases in which there is most toxemia, or in which the "typhoid state" is most pronounced.

Because of the desirability of ridding the alimentary tract of microbes and of poisons, there have been clinicians all through the last century who advised keeping the bowels open with, if necessary, daily doses of salines and occasional doses of calomel. The majority, however, believe that this treatment aggravates the catarrhal inflammation of the bowels which usually accompanies the disease, and they prefer to rely upon enemata rather than salines. I am convinced that in many cases, especially when the "typhoid state" is well developed, colonic flushing does good. After each high enema as much of a sterilized salt solution as the bowel will retain, should be left in it to assist the elimination of toxines by producing diuresis.

In the most severe cases, hypodermic injections of sterilized salt solution also do good because they stimulate excretion by the kidneys.

An antitoxin has not yet been found for typhoid fever. But the results of experiments lead one to be hopeful. In 1893, Frankel experimented with inoculations of cultures of typhoid bacilli sterilized by heat, and showed that the blood of those who were

vaccinated possessed bactericidal and immunizing properties. Vaccination with such sterilized cultures has been tried extensively during the last few years, and with encouraging results. For instance, in South Africa the English found that of 1210 persons ill during an epidemic, the mortality among the un-vaccinated was 14.25%, and among those vaccinated from 6 to 18 months previously, 6.8%, and the disease was decidedly milder when those who had been vaccinated were attacked. Vaccination for typhoid is not applicable to the treatment of those who are ill, but is a prophylactic measure. However, I refer to it now to call attention to what is being attempted along lines which may lead to the discovery of an antitoxine.

Discussion.

John A. Robison, Chicago: Dr. Davis has very succinctly and admirably outlined the most modern and the best treatment of typhoid fever. While listening to his report of acetozone I was pleased to learn that he was not an enthusiast in the use of this drug. I have experimented with it somewhat, but am not prepared at the present time to give a definite report. Last summer and fall we used it quite extensively in the Presbyterian Hospital, and the results we obtained did not seem to justify continuing its use, consequently it was abandoned. I recall, however, that it did seem to shorten a few of the cases, but, as the author stated in his paper, the experiments made in this line have not been followed out extensively enough to permit me to venture an opinion on the subject.

In regard to intestinal antiseptics, there is one that he failed to mention and which belongs to the coal-tar products, and that is guaiacol. In the treatment of typhoid fever I have used the carbonate of guaiacol quite extensively; in fact, there is no one drug which I have used any more as a routine procedure than guaiacol carbonate. Partly on account of its supposed intestinal antiseptic action and partly, but not to a very great extent, because of its antipyretic action. From its use I think we frequently obtained a lessened amount of intestinal fermentation. I give it in very small doses; one or two grains every two or three hours.

The theory of intestinal antisepsis is a beautiful one, but it is very difficult to put it into operation practically.

I agree with the doctor in regard to the use of turpentine. I think it is one of the best remedies at our command; one we can use more frequently than any other in the treatment of this condition. I believe that as a routine measure the use of intestinal antiseptics is the plan of treatment we should adopt, and, in addition, give some simple antipyretic. The less medicine we give in typhoid fever, the better, are the results which we obtain.

Dr. Davis (closing the discussion): Just a word in closing. I regret that I did not, perhaps, in my paper define my position quite as clearly as I intended to in the matter of intestinal antiseptics. I am quite convinced, from the nature of the infection and the pathology of the disease, that we cannot expect to find a specific treatment in intestinal antiseptics. They are merely useful adjuvants in preventing constant reinfection of the patient and a consequent prolongation of the trouble in the form of relapses. Furthermore, intestinal antiseptics have a place in preventing the toxic condition which develops as the result of putrefaction in the intestinal canal and to which secondary infections are sometimes due.

One word more, and that is in regard to the importance or utility of drugs. My study of acetozone brings it home to me particularly. When I first began to use acetozone last summer it seemed to me that the disease was shortened in duration. As we got further along in the course of the disease during the fall, when we met the severe cases of typhoid, the prolonged cases, it semed to me that acteozone did no good whatever; that it was practically useless. That was my feeling until I came to analyze the cases that were treated with this drug. We found upon analysis that there was actually a little lessening of the duration of the malady in those cases treated by acetozone as compared with those that were not. Further statistics ought to be gathered, however, because my observations are not sufficient on account of the comparatively small number of cases, practically only 80 in all, and also because the cases I treated with acetozone occurred mostly in the last part of the epidemic, when the more complicated cases were most prevalent, when the cases were more prolonged, and the therapy naturally would not be quite so satisfactory as in those cases treated early. So that we need further statistics, and careful analysis before pronouncing a final judgment on the worth of acetozone. The very fact that my impressions of acetozone were to the effect that it was of little value and that these impressions were not wholly corroborated by more careful study of the statistics, shows again that we must make a more careful statistical study, rather than depend upon impressions which we may receive from the treatment of a few cases occurring at a certain time.

SOME FACTORS IN THE SPREAD OF TYPHOID FEVER.*

BY FRANK H. RUSSELL, A. M., M. D., KEWANEE.

Outbreaks of Typhoid fever whether on a large or small scale are frequently exceedingly mysterious in their origin. Sporadic cases happen in a community where least ex-

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pected and among people whose mode of life is above criticism. The question always comes, "where did it come from, and how did they get it?" I propose to take up some of the factors in the spread of that dreaded disease—factors which have been exceedingly interesting both from the standpoint of literature and investigation. I have intentionally left out the consideration of the contamination of water and milk supplies.

1. Man. One of the principal agencies is man himself. Wherever men assemble in any considerable number Typhoid fever is almost sure to find its way. In regions far remote from the permanent habitations of man, in lands where the white man has for the first time made his appearance, in lonely mining regions never before inhabited by a human being—into these places this disease has come. But it has been transported there by man himself. In the Government Report of Typhoid fever in the Spanish American war the statement is made, "We have traced typhoid fever into every encampment in which it became epidemic and man himself is the most active agent in the dissemination of the disease. It is he who carries the specific virus about his person into all congregations of men. He deposits the virus in his excrement and it is thence distributed in various ways among his fellow men."

Let us relate some common experiences. The nurse after caring for her patient day and night grows careless,—eats a morsel of food with unwashed hands, or she leaves contamination upon the door knob, or upon a chair, or upon some cooking utensil, and someone else assists in transferring it. The clothes smeared with dejecta are sent to the washerwoman. The next day they are returned in the same basket together with handkerchiefs, napkins, with which we wipe our mouths and on which we blow our noses. Or soiled clothing is piled up in some dark closet or corner. Particles become mixed with the rest of the dust. This is stirred up by the maid in the morning and it alights on the lettuce just picked over for dinner. When the patient is convalescing the nurse goes to eat dinner with a friend; while waiting for the announcement of the midday meal she takes out her knife and cleans her finger nails. These scrapings, perhaps laden with typhoid germs, mix with the rest of the dust and are disseminated by the first breath of air. When the patient is convalescent the bed clothing is folded up and put into the closet; a visitor comes to the house and that same clothing is given to him to sleep under. Many other such instances might be mentioned.

It has been shown by experimental research that pure cultures of typhoid fever bacilli will retain their virulence when poured upon cotton, woolen or linen cloth for from two to three months. It is stated that typhoid bacilli are killed by a perfect desiccation, but a wind may carry partially dry infected particles of dust which may be deposited on food or inhaled and thus cause typhoid. It is perfectly possible for a person to carry the microbes under his finger nails or in his clothing from one state to another and then accidentally introduce the germ into the alimentary canal of himself or that of another.

While some are exceedingly careful to disinfect the feces, little or no attention is paid to the urine. While the bacilli are not found in the stools later than the third week after convalescence as a rule, yet in the urine they may persist for weeks and months. Schüder, giving results of investigation by himself and others, says that bacilli are found in 29% of cases examined. He believes that the percentage would be even higher if prolonged search were instituted. In one case in which he examined the urine every day he found the typhoid bacilli only on the 49th day.

Klimenko investigated 65 patients with typhoid fever to determine the persistence of bacilli in the urine, and he says they usually disappear from the 3d to the 30th day of convalescence. In a few of his cases they persisted a year.

Gwyn, in the Johns Hopkins Hospital reports, found typhoid bacilli in the urine of a man five years after having the fever. Neufeld, states that he thinks there is greater danger in the urine than in the feces. He states as his reasons that: (1) There is no odor to urine to remind one to wash his

hands. (2) The bacilli are more numerous in urine than in feces. In one case he estimated that there were 100 millions to a c.c. of urine. (3) Soiled articles such as bedpans, clothing, etc., readily escape notice for the lack of any filth one can see. (4) The bacilli persist longer in urine than they do in feces.

What nurse is there who takes the same precaution with urine as with feces? The feces may be disinfected but the urine is simply thrown out. The convalescent patient urinates wherever he takes a notion. So a patient could unwittingly infect a water supply years after his attack of typhoid fever.

The sputum of typhoid patients seldom receives any attention. Jehler examined the sputum from twenty-three cases and made cultures from fifteen cases that came to an autopsy. He found the Typhoid bacilli in many cases both with and without complicating bronchitis. Four out of five cases complicated by pneumonia contained them. Two out of six cases uncomplicated by bronchitis gave positive results. Pure cultures were found in sputum during the 3d week in five separate examinations. He also makes the statement that typhoid bacilli were found in some cases of bronchitis without intestinal lesions.

Typhoid abscesses are rather rare but they are not without danger to those who come into contact with the pus. Many cases are on record where the organism has been found in the abscesses long after the patient has had the fever. These are chiefly bone abscesses. Sultan opened an abscess six years after recovery and cultivated from it the specific germ. In Buschke's case of bone abscess the germs remained alive 27 years.

Thus we see there are many ways of communicating the disease by direct contact with man himself or his excretions.

2. Soil. The ancients had an idea that the locality had much to do with the spread of disease. People fled from the infected districts. There is reason in this as has been proven by experiments and observation. Among other infections, typhoid bacilli are known to inhabit certain localities for a long period of time.

There is to be found in almost every community some doctor or nurse who insists upon the burial of dejecta in the garden as the proper way of disposal. Many have an idea that soil will kill typhoid bacilli. The reverse is found by observation and experiments to be true. The bacilli will not remain buried in the holes or trenches but will come to the surface like "fungus in a hot bed."

Some experiments will be of value on this point. Robertson selected a grass covered field for his experiments. He removed the turf and planted the typhoid bacilli at different depths. 1st. Just below the turf. 2d. 9 inches below. 3d. 18 inches below. The soil which had been removed was carefully put back. 130 days after the planting, the turf was removed and the soil examined. In all cases the organisms were alive and had multiplied. Not only this, but those that were planted 18 inches in the soil had gone to the surface where they were found to be abundant and virulent. During the winter the organisms remained dormant. In the spring they were fertilized with a little beef broth which brought out an abundant growth of the germ, nearly one year after the planting.

In perfectly desiccated dust the organisms will die. But dust need not be perfectly desiccated to be blown by wind. In dry soil Firth and Horrocks have shown that the bacilli will retain its vitality for 25 days. Uffelman has shown that they will live over 60 days.

Martin planted the organism in contaminated soil where typhoid had been endemic. Active growth was found after the lapse of 105 days. Recently Levy and Kayser have reported some experiments on the length of life of the typhoid bacilli in stools that have not been disinfected. The contents of a private cement vault were scattered on the garden. Five months previous to this some typhoid stool had been emptied into this vault. After this material had remained on the garden soil for fifteen days, they were able to cultivate from the earth on which the feces were spread the true typhoid bacilli.

As a matter of experience Veeder recites a case of a small village where typhoid had

been endemic for a number of years. The water supply was beyond question and the people were usually careful and cleanly. The doctor and the neighborhood nurse were advocates of soil disinfection. At a good distance from the well trenches were dug and the dejecta emptied therein. Year after year they had their succession of fever cases. The doctor finally succumbed to the disease, and also the nurse. After their death the custom of burying the feces ceased and "the disease took its departure, not more than one or two sporadic cases, evidently imported from out of town, having occurred in the ten years or more that have since elapsed."

Instance after instance can be related where armies have become infected with typhoid by using camping grounds formerly occupied by soldiers when typhoid was epidemic. The 23d Massachusetts in April, 1862 developed 300 cases soon after coming to an infected Confederate camp ground.

In January 1890 the British in India had a similar experience. Joseph Curry in writing upon fever in the Philippines says that some of the typhoid fever seen in American troops in the Philippines may have been imported to Manila from San Francisco, but the *great source* was the old Spanish camp ground that our soldiers were obliged to occupy for military reasons.

So there are localities where typhoid is perpetuated year after year because of soil infection. Dejections scattered in the garden are especially dangerous. Whether scattered on the surface or buried in holes or trenches the effect is the same for it all comes to the surface. Onions, lettuce, radishes, turnips, —anything that has earth or that we eat raw can carry the dreaded infection to the gastro intestinal tract. Small whirlwinds can pick up partly desiccated dust in which the organisms reside and deposit it on the kitchen table on which are found the milk and food ready to be eaten.

3. Flies. Outside of the cities where a good sewerage system is maintained one of the greatest factors in the spread of typhoid is the common house fly. To see the easy possibility of such a mode of transmission one need only to look at the feet and legs through a magnifying glass. The legs are covered with a large number of short bristling hairs. The feet are each armed with two claws, between which are two membranous pads. These pads are covered with tubular hairs that secrete an adhesive fluid, by means of which the fly clings to smooth surfaces. Let a fly walk through dust and the particles can be seen clinging to those short hairs and padded feet. The more sticky the dust the closer will the particles adhere, and it is reasonable to assume that wherever a particle of dust can adhere, any number of bacteria can find lodgment.

This is not all theory for definite experiments have been made along this line.

Sangren (1) put flies in a culture of anthrax for one-half minute and immediately transferred them to sterile plates; (2) exposed flies to a culture for one minute and then after the lapse of half an hour allowed them to walk on a sterile agar Petric dish. The same experiments were used with fecal matter infected with anthrax. An abundant culture was obtained in all instances. Anthrax was used because the colonies could be so easily recognized. The same series of experiments, however, were tried with typhoid bacilli with the same result.

Coplin, writing of results of his experiments, makes the statement that the bacillus typhosus was demonstrated by culture to be present 96 hours after the infection of the flies.

Experiments have not only shown that the bacilli can be readily carried upon the person of the fly but Celli showed also that virulent bacilli could be found in the feces of flies. He fed flies with pure cultures and examined their contents and dejections microscopically and culturally. Inoculation on animals were also made proving that the bacilli which passed through flies were virulent.

Ficker has recently described some interesting experiments to determine the length of life of the typhoid bacilli in or on the bodies of flies which had been fed with infectious material. He found they were able to convey the infection to objects as long as twenty-three days after the feeding.

Ascertaining without a doubt that flies can and do act as carriers of infection, what

are the possibilities. In the report on the origin and spread of typhoid fever in the United States Military camps during the Spanish American war, they state that in many camps "flies were undoubtedly the most active agents in the spread of typhoid fever. Flies alternately visited and fed on the infected fecal matter and the food in the mess tents. More than once it happened when lime had been scattered over the fecal matter in the pits, flies with their feet covered with lime were seen walking over the food. Typhoid fever was much less frequent among members of messes who had their mess tents screened than it was among those who took no such precaution."

Veeder says he had once seen typhoid dejections emptied from a commode and the latter placed near a pitcher of milk which had just been left at the door. Flies gathered about the milk and the commode and were flying from one to the other.

Uffelmann in working on the cholera spirillum infected a fly with the germ and placed in a glass which contained sterilized milk which he allowed it to drink. As soon as this had occurred he shook the milk and then put it into an incubator for 16 hours. At the end of that time one drop of milk yielded 100 colonies of cholera spirullum. The same experiment could undoubtedly be duplicated with typhoid bacilli.

Alice Hamilton made a very exhaustive study of the typhoid epidemic in Chicago in 1902. She makes the statement that "Flies caught in two undrained privies, on the fences of two yards, on the walls of two houses, and in the room of a typhoid patient were used to inoculate 18 tubes and from five of these tubes the typhoid bacillus was isolated."

From these experiments and observations there can be no doubt that flies are active agents in the spread of typhoid fever, especially in the country where privies are in use, and where the dejections are emptied on the ground. Flies are everywhere. They follow the horses from the country to the town, ride in the cars from city to city, travel in steam ships from continent to continent. In 96 hours a fly can be far from the place where it covered its legs with filth and drank in deadly poison. It is only with the greatest of care that they can be kept out of our kitchens. It takes eternal vigilance to keep them off our potatoes, from getting into the milk pitcher, from depositing their feces on the vegetables, from crawling over our faces and hands. Who knows where they have been? Perhaps swarming like bees in someone's backhouse, perhaps tramping about over a bedpan that has just been emptied, perhaps greedily devouring a typhoid dejection emptied in the garden, perhaps slaking their thirst in the saliva drooling from the corner of the mouth of an unconscious typhoid patient. Then with feet contaminated with the dirtiest of filth and their bodies vile as the vilest they fly into our faces and walk over our food, scratching their legs and rubbing their wings.

When we consider how many ways there are of transmitting the germ, is it any wonder then that there are some mysterious cases of typhoid fever that develop in our communities?

EUPHTHALMIN AS A MYDRIATIC FOR THE GENERAL PRACTITIONER.*

BY ALBERT B. HALE, M. D., CHICAGO.

In an unexplored corner of the Chicago Medical Recorder (February, 1900) I reported my experiences—physiologic and diagnostic—with Euphthalmin and expressed the hope that the drug might come rapidly into favor not only with the ophthalmologist, who is using a pupil-dilating chemical every day, but also with the general practitioner who might not infrequently wish to convince himself that the iris was performing its proper function unchecked by an acute congestion, or was not retained against the lens or cornea by the product of old and inactive inflammation, or wish to explore the fundus for signs of local and general disease; all this in as quick and safe a way as possible.

There are two great purposes of the intro-ocular effect of the mydriatic group. In some cases we might, if we could, dispense

*Read at 53d Annual Meeting, Chicago, May 30, 1903

with the cyclopegia of say atropin; in other cases, if we are using a drug for the estimation of refraction we could wish to secure paralysis of the ciliary muscle by itself, leaving the pupil undisturbed and the iris to play its active part in visual physiology. This latter drug has not yet been and never may be found, but we do seem to possess the former, i. e., a drug that, without noticeably effecting the more powerful ciliary muscle yet possesses strength enough for the short time desired to overcome the sphincter of the iris and to allow the fundus to be flooded by light without protracted annoyance to the patient.

To be sure we have in cocain a drug that answers this purpose to a certain extent but it has the two disadvantages of producing an anesthesia that is not without danger and of sometimes macerating the corneal epithelium in a way that may lead to unpleasant consequences. In homatropin we have mydriasis but some cyclopegia and the effect does not disappear before at least twenty-four hours have passed.

All this and more I have said in my earlier article and I should feel unauthorized to bring this drug again into print were it not that I have had opportunity since my original experiments to confirm them in a more elaborate manner, and that I hear from the agents for the drug (Shering and Glatz) that Euphthalmin has so little recognition in America as to compel them practically to withdraw it from the market. As for its physiologic properties, I must repeat what I said three years ago and annex the following table:

Age.	Refraction.	Near point 1 hr. before using drug.	Near point 1 hr. after drug.	Duration of dilatation.	Decrease of accom.
9	Hy.	8 cm.	10 cm.	2 hours.	2.50 D.
18	Hy.	10 cm.	12 cm.	2 hours.	1.66 D.
30	Hy. & astig.	12 cm.	13 cm.	3 hours.	0.56 D.
45	Em. presby	22 cm.	25 cm.	2 hours.	0.54 D.
63	My. $1^{1}/_{4}$ D.	90 cm.	90 cm.	4 hours.	0.00 D.

1. Euphthalmin (5 to 10% watery solution) produces practically no subjective symptoms.

2. Its mydriasis is of short duration.

3. The effect shows itself earlier in youth than in age.

4. It has no effect on tension.

5. It has no effect on conjunctiva or cornea.

6. It influences Accommodation to only a slight degree.

7. The normal condition of the pupil is rapidly restored.

8. It is apparently non-toxic.

Since then I have used Euphthalmin in all kinds of cases—old and young—for diagnostic purposes. I find that I obtain a satisfactory dilatation in nearly every instance after two drops of five minute intervals at the end of 45 minutes at most, using either a 5% to 10% solution. (I do not add cocain to this, as I wish to avoid all effect on the cornea.) This dilatation lasts usually two hours, never more than four, it causes no inconvenience to the patient beyond the unusual amount of light and I have had no complaint that could lead me to suspect increase of tension (glaukoma), although I know that glaukoma has been aroused by Euphthalmin (Knapp). Clinically I resort to Euphthalmin as a routine measure and in over 200 more cases I have had no occasion to be disappointed with the result. It will not subdue an iritis or break up adhesions, but for that reason it is satisfactory, as the very failure to act demonstrates that there is some condition in the iris demanding more than a simple mydriatic. In contracted pupil from nicotine amblyopia it is excellent; in all cases where the fundus is to be studied either for diagnosis or classroom exercise it has no equal, does not annoy the patient nor cause the complaint that vision at the reading point is noticeably modified.

I wish to report however, one series of experiments with Euphthalmin which placed it beyond doubt in my mind as the most trustworthy and by far the least harmful agent for the production of mydriasis for the study of intra-ocular conditions.

I happened to be in charge of a home for aged negroes where I found ten inmates varying in age from 70 to 100, with poor

vision. Most of them had contracted pupils (the pupil and fundus of the negro, on account of the excessive pigment is in any case hard to examine), some had suffered from earlier inflammation of the eyes, in some a cataract was evident or suspected, but in none could a thorough examination be made. In many of the eyes there was high tension and in one person a distant simple glaukoma.

My Assistant, Dr. Winans, to whom I am indebted for the written notes of the experiment was asked to drop into each eye of these inmates one drop of a 10% solution at fifteen minute intervals for three times. I arrived at the home later than I had appointed and in his desire to maintain the mydriasis he had already secured after 40 minutes, he gave six doses during an hour and a half. Close attention was paid to the extent of dilatation, to the observations of the patient and to the condition of tension. With the pupils in their usual state it was impossible to make a satisfactory ophthalmoscopic examination, but at the end of the interval mentioned above and for two hours thereafter there was a maximal pupil where no adhesions were present, and evident signs of irregular pupil where adhesions either at the pupillary edge or further back had been established. There were then discovered: Iritic adhesions in 7 eyes; immature cataract in 8 eyes; mature cataract in 6 eyes; optic atrophy in 6 eyes; glaukoma in 2 eyes; normal condition in 1 eye.

In only one of these cases was any notice taken of the effect of the drug; the tension remained as it was before. By the next morning no trace of the drug was discernable in any eye. In the one exceptional case there had been before the use of Euphthalmin continuous glaukomatous pain and the patient attributed the pain that was evident on the next day to the drug, although I found no increase of tension; but I am willing enough to admit that the drug may have had its influence.

This is therefore to me a satisfactory proof from the empirical side that Euphthalmin is a trustworthy and effective, and the best pure mydriatic we have for diagnostic purposes.

New Incorporations.

The Secretary of State at Springfield has licensed the following corporations:

Phenix Medical Association, Chicago; capital, $2,500; commercial and collection agency for medical practitioners; incorporators, Louis B. Door, G. L. Jacobs, M. G. Eldred.

Pineaule Medicine Company, Chicago; capital, $30,000; manufacturing proprietary medicines; incorporators, E. W. O'Brien, V. J. Burke, E. E. Sutherland.

Hobbs Spanish American Medicine Company, Chicago; capital, $2,500; manufacturing chemical preparations; incorporators, John F. Robertson, William C. Harmon, Haney Kelting.

Ivole Chemical Company, Chicago; capital, $25,000; manufacturing drugs, novelties and dentifrice; incorporators, Samuel M. Sargent, Guy H. Powell, Joseph J. Shaw.

Bauer & Black, Chicago; capital increased from $200,000 to $250,000.

Marriages and Deaths.

Marriages.

Otis J. Baldwin, Farmersville to Miss Edith Austin, Virden, Nov. 26.

Robert F. Campbell to Miss Gertrude C. Wallis, both of Chicago, December 10.

Budd Clarke Corbus, Chicago to Miss Julia Gertrude Pitkin, Benton Harbor, Mich., Dec. 15.

Henry M. Stevenson, Bloomington to Miss Bessie Coykendall, St. Paul, Minn., Dec. 2.

George William Parker, Chicago to Miss Amy Josey, Calumet, Mich., at Chicago, Dec. 1.

A. M. Wiles to Miss Cora M. Whitehead, both of Jerseyville, Dec. 3.

Charles B. Younger, Chicago to Miss Nannie Ruth Broaddus, Lacon, Nov. 25.

Deaths.

Beebe, Albert G., Chicago, Dec. 2, aged 60.

Benson, Valentine S., McLeansboro, Nov. 27, aged 69.

Bronson, Henry P., Chicago, Dec. 15, aged 51.

Clark, Richard E., Chicago, Dec. 13.

Conroy, A. F., Chicago, Nov. 28, aged 38.

Frost, L. A., Jacksonville, Dec. 14, aged 61. Dr. Frost has been disabled since 1898 when he suffered a stroke of paralysis. For twenty-four years he was assistant physician at the Central Hospital for the Insane.

Kendall, H. W., Quincy, Nov. 25, aged 72.

Kingsley, Virgil, Carthage, Dec. 4, aged 51.

Rembe, Edw., Lincoln, Dec. 14, aged 49.

Stewart, H. L., Humboldt, Nov. 24, aged 80.

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E. B. Montgomery....Secretary Quincy.

SECTION TWO.

Surgery, Surgical Specialties, and Obstetrics.

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The Council.

Term Expires 1904.
(2) W. O. Ensign, Rutland.
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(9) J. C. Sullivan, Cairo.

Term Expires 1905.
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Term Expires 1906.
(7) C. Barlow, Robinson.
(1) M. L. Harris, Chicago.
(4) O. B. Will, Peoria.
The Pres. and Sec'y, Ex-Officio.

NEW YEAR'S GREETING.

The year 1903 has been noteworthy in the history of the medical profession of Illinois. During the year such a unification of professional interests has been accomplished as had not been deemed possible five years ago. During the year The Journal has grown from a circulation of 1,500 to 4,500, and from 48 pages to 132 pages of contents. Local Societies have been organized until only thirteen Counties, with an aggregate of about 500 physicians, about 40% of the total number, remain outside the gates. The State has been divided into nine districts, and discreet councilors have been appointed to look after professional intersts in these districts. Failure to secure a Board of Medical Examiners has been, we believe, the only disappointment of the year, but this may be turned into a victory in the near future. Altogether the past year has been a remarkable one for our profession.

For 1904 new problems arise. The thirteen Counties must be organized. The Journal must be improved. Work on a new bill for regulating the practice of medicine must be commenced. The profession must devise an effective contest against Tuberculosis, Pneumonia and Cancer. The State Charitable Institutions must be improved. An Epileptic Colony must be established. Plans must be devised for improving the morals and education of those already practicing medicine. Professional pirates must be driven from the State.

These and many other subjects worthy of our best efforts are before us. We invite every honest practitioner to enter our ranks and assist us in the noble and glorious undertaking.

GREATER CAUTION IN DISPENSING STRYCHNINE.

Scarcely a week passes without the daily presses recording the death of a child from swallowing strychnine pills prescribed for some older member of the family. So frequently has this lamentable accident occurred in recent years that it becomes a serious question as to the advisability of dispensing this dangerous drug in tablet or pill form. If given dissolved in water its bitter taste would doubtless prevent a child from swallowing a poisonous dose and adults, while they might object to the flavor, would probably continue to take the medicine. If absolutely necessary to give it in solid form some sort of container should be devised which would be too difficult for a child to open. We bring this matter up so that our readers may have their attention called to this real danger and if any better plan can be devised to prevent deaths of innocent children we should be glad to hear of and announce it.

A SYMPOSIUM ON TUBERCULOSIS.

The fight against the white plague has heretofore failed largely because it has commenced in the wrong quarter. Gentlemen who have felt themselves charged with a mission to stamp out tuberculosis have called congresses, national and international and have loaded great guns of information to be discharged in the academic air far above the heads of the common people. As might be expected up to this time and by these methods little has been accomplished. What is evidently necessary is to secure the co-operation of the family physician. When he understands the steps necessary to be taken it will not be long until substantial progress is made in what will be the greatest conquest of the 20th century. No person who understands the question can now doubt that tuberculosis can be as successfully eradicated from the list of diseases as is smallpox. Occasional cases of both diseases will always appear because of the perversity of human nature.

* * * * * * * * * * * It is with great pleasure therefore that we learn from J. W. Pettit, Chairman of Section One that a symposium on Tuberculosis will be held at the Bloomington meeting. In writing of the subject Chairman Pettit says:

I am making very elaborate plans for the presentation of a practical symposium on pulmonary tuberculosis at our next meeting. The statistical features will be confined to this state. This will include mortality, influence of climate, topography, occupation, residence (city and country), and such other data as may be thought desirable by the gentlemen assigned to take part. Prophylaxis, treatment, and such other features as come within the scope of the subject will be presented in such a clear concise and forceful way that it will undoubtedly result in stimulating an interest and arousing an enthusiasm that will lead to practical results.

While the papers will be scientific and of value to the profession they will be devoid of technicalities which will make them of educational value in enlightening the public. In order that they may be given the widest publicity possible I shall ask the co-operation of the secular press throughout the state to publish at least very liberal abstracts of the several papers presented.

The gentlemen selected will all be men who need no introduction in this or any other state, and can be relied upon to say the right thing in the right way.

My object in writing this letter is that you may know something of the plan and give notice to the profession in your editorial columns. I believe such an effort consistently and persistently carried out, will arouse the profession from its present attitude of hopelessness, and through them, the public from its apathy toward this unfortunate class. The success of the hygienic, dietetic, rest and exercise treatment of pulmonary tuberculosis as carried out in sanatoria and at home proves conclusively that the disease is not only curable but easily preventable. These

and other kindred facts will be brought out in the papers and the discussion. It is time for the profession as a whole to face about on this great problem and the proposed symposium will be an important factor in initiating and giving direction to both lay and professional sentiment.

WHAT IS MEANT BY THE NATURAL VITAL RESISTANCE TO THE INFLUENCE OF TOXIC OR DISTURBING AGENTS IN THE LIVING HUMAN BODY? THE VIS MEDICATRIX NATURAE OF EARLIER WRITERS —WHAT ARE THE ELEMENTS OF WHICH IT IS COMPOSED; AND HOW MAY THEY BE STRENGTHENED OR IMPAIRED?

In the preceding number of the Journal the importance of recognizing a clear distinction between contagious and infectious diseases was stated. A protest was made against allowing the search for bacterial germs as specific causes of disease, to cause less attention to the predisposing or more remote causes; and also against permitting the search for specific remedies to lessen the efforts to adjust our remedies to each stage in the progress of all acute diseases, in such a way as to assist the natural processes by which the living body frees itself from the presence of disturbing elements of various kinds. And this led directly to the question, what constitutes the natural vital resistance to toxic or disturbing agents, and how may it be increased or diminished? Through all the ages, from the days of Hippocrates to the present time, the pages of medical literature have contained the words "Nature," the "efforts of nature," and the "Vis Medicatrix Naturae," as personifying an active, if not intelligent force in living animal bodies exerting an important, if not a controlling, influence in the prevention and cure of diseases. At the present time many writers and investigators use the words "vital resistance" to indicate the same force or influence as "nature" or "efforts of nature." But neither they nor their predecessors have attempted to explain just what vital or physiological properties and processes constitute "nature or vital resistance." Thus, Hippocrates declares "the physician is a servant, not a teacher of nature;" and that he should "follow nature in the treatment of diseases" But how is he to follow or imitate nature unless he sees clearly what constitutes nature, as used in medicine, and the modes in which it may be influenced. A careful study of the subject shows that the natural vital resistance to the influence of toxic agents is composed of or dependent on, the coexistence of a healthy, vigorous condition of the protoplasm of which the structures of the living body are composed; a healthy active condition of tissue metabolism, and of the secretory and excretory functions; and an unobstructed circulation of well oxygenated and decarbonized blood. That the protoplasm which constitutes the physical basis of all living organized structures varies much in its properties in different individuals of the same species, is very generally conceded. In one, it displays an active vigorous power to select from the materials with which it is in contact that which is necessary, for its own growth or repair, and to reject all else and thereby preserve its own integrity and increase the individual tenacity of life.

In another this same power is much less active; the processes of growth and repair are easily disturbed or arrested, and the resistance to the influence of toxic agents is diminished.

In still another, the protoplasmic properties are perverted in such directions as to constitute a constant tendency to the development of structural degenerations or morbid growths, by which the vital resistance is impaired and the duration of life much diminished. The essential conditions for producing and preserving the most perfect and active protoplasm are healthy parentage, whole-

some food, pure air, good water, comfortable clothing, and judicious daily exercise of both body and mind. That the protoplasm constituting the impregnated ovum is derived from the protoplasm of its parents probably no one will deny. And as like begets like, if the protoplasm of one or both parents is imperfect, similar defects will in due time appear in that of the offspring, constituting hereditary defects in some so great that life ceases before birth or during infancy, and in others so slight as to be manifested only in the middle or later periods of life. But when the protoplasmic inheritance has been most perfect in the offspring, it may undergo subsequent impairment by either the persistent use of defective or unwholesome food, or of confined and impure air, or by the daily use of small doses of anaesthetic and narcotic drugs, or by the long continuance of mental anxiety and despondency. Food may be defective either in quantity or from the deficiency of one or more of the constituents necessary for the growth or repair of the protoplasm of the blood and tissues; or it may be unwholesome from the presence in it of materials that disturb the natural metabolic and excretory functions of the body; and in either case, the integrity of the protoplasm and the vital resistance to toxic influences are both impaired. The same may be said concerning the habitual use of confined and impure air, and of impure water. That the presence of a sufficient quantity of free oxygen in the blood of man is essential for the maintenance of health, is a fact too well known to need discussion. On its constant presence in the circulating blood depends all cerebral and nerve sensibility, and all natural tissue metabolism and excretory activity. For man, it is derived solely from the atmospheric air, and enters the blood through the air cells of the lungs, and is carried with it to every organized structure of the body. Whatever diminishes it, lessens the nerve sensibility and muscular strength, and impairs the activity of the protoplasm as seen in both retarded metabolism and excretion. Consequently all confinement in poorly ventilated and uncleanly rooms lessens the protoplasmic activity and becomes an important predisposing cause of disease. This is well appreciated by those who are striving to limit the prevalence of tuberculosis; and hence their constant demand for an abundant use of fresh and pure air, that there may be more oxygen in the blood. There are, however, other agencies actively and extensively in use in our country, and in all the countries of christendom, that are constantly exerting an injurious influence on the protoplasm of both blood and tissues; and in such directions as to greatly diminish the natural vital resistance of the individual user, and that of his offspring. The agencies to which allusion is here made are to be found in the well known list of narcotic and anaesthetic drugs, all of which taken into the living body diminish more or less, all nerve sensibility and muscular strength, and impair the functions of all protoplasm in direct proportion to the quantity used and the length of time its use is continued. Of this list of drugs, those most extensively used are opium, tobacco, and alcohol as it exists in the various fermented and distilled liquors. When it is remembered that the people of the United States of America, consume more than a billion of dollars worth of alcoholic liquors annually, and nearly as much in value of tobacco; and that their ruined victims are found in every poorhouse, every public hospital, every asylum for the feeble minded and insane; every police station, criminal court, and prison, we have before us abundant evidence of this deteriorating and degenerating influence on every structure and

function of the human body, both mental and physical. It is useless to repeat the old assertion that all the destructive effects of alcohol are produced by "its abuse" i. e. its excessive use. For the simple fact that so large a proportion of those who commence using any, are unconsciously carried on to its use in excess, shows that its most moderate use injures the protoplasm of the brain and the digestive and secretory organs in such manner as to lessen their vitality or tenacity of life. It has been fully demonstrated that vegetables will not grow well in an atmosphere impregnated with the vapor of alcohol, and if the soil in which they are planted is watered with water containing 15 or 20 per cent of alcohol they die. Most careful and somewhat extensive investigations have proved that more than half of the children begotten while one or both parents were daily using some alcoholic drinks were still-born or died during the first two years after birth; while less than twenty-five per cent of the whole number reach the middle period of life in good mental and physical health. Add to the foregoing the well known tissue degenerations in chronic alcoholism, and the fact that every standard book on practical medicine published in the English language during the last half century, mentions alcohol as one of the important predisposing causes of pneumonia, tuberculosis, nephritis and cardiac and mental defects and disorders of every grade and we have abundant proof that the use of alcohol and other anaesthetics and narcotics are direct protoplasmic poisons and diminish man's vital resistance to the influence of toxic agents whether they be microbic, chemical or mental. Consequently while our sanitarians and the profession generally continue their warfare on pathogenic germs as exciting causes, they must war with equal diligence against the use of those anaesthetic and narcotic drugs that are in such general use as predisposing causes, or they will ignominiously fail in the accomplishment of their high purpose. N. S. Davis.

NEEDS OF THE STATE INSTITUTIONS OF ILLINOIS—Continued.

For the last eleven years the experience of these institutions has been such as must vitally effect their present needs, and this must be kept in mind in making any intelligent suggestions for their improvement. It is a matter of history now that when the election of 1892 gave the control of State politics to a party which had been long out of power, its immediate result on the State institutions was a sweeping change in their management. New boards of trustees and superintendents were appointed at once, and soon almost the entire personnel of those in charge of the institutions in every capacity was changed, not for reasons of efficiency; but frankly for the purpose of creating a strong party organization by means of the appointments. At the end of four years many of these appointees had become good officials, but by a turn of political fortune the other party came back to power at that time and all the trustees, superintendents and most minor officials were summarily ejected and new ones of suitable political complexion were appointed. At the end of another four years there was a change not of party but of a wing of a party, and while the result was a smaller number of actual changes, yet every one who is acquainted with the institutions knows that the restlessness and anxiety within the institutions, the efforts to retain appointments were never greater. "You see," said an employee, "the trouble is that not a person in this institution knows whether he is going to have a job after the first of January or not."

In addition to these periodical alterations there have been many other changes. Some

have occurred because certain appointees have proved scandalously bad public servants, others because political interests have demanded removals, others because fine officials have sought positions of greater certainty in a more peaceful atmosphere.

To give a single instance—one hospital for the insane in Illinois has furnished to another State, heads for two flourishing private sanitariums, has given the New York State Pathological Laboratory its present head (this place is protected by the New York Civil Service Law), and two physicians from its staff is now head of one of the largest and most progressive general institutions in the Middle West. All these men—and hundreds of others less conspicuous—would have been kept in the service of the State which trained them, under a reasonable system of appointments.

The assessment of appointees for party political expenses is an inevitable detail of the present system of appointments, but one which is of minor importance as compared with the constant changes in the service; on the theory that the welfare of the patients is the primary object to be considered.

It is not necessary to point out in detail how these changes of control, which would absolutely ruin any private business enterprises, must impair the fine professional feeling which can alone lift the institutions above the plane of lodging houses; but it would be childish to point out the special needs of the various institutions, the improvements needed in their technique, without recognizing that the *sine qua non* of any genuine improvement is the enactment and faithful enforcement of a merit law governing appointments. In the next issue we shall make some suggestions as to special requirements of some of the institutions. (*To be continued.*)

Correspondence.

OSTEOPATHIC TREATMENT OF URETHRAL STRICTURE.

To the Editor of The Illinois Medical Journal:

Some weeks ago a young man called at my office, requested an examination of his condition, and asked me if I had any objections to the continuance of the "treatment" of one whom he termed an "osteopathic physician." I replied that I was considerably interested in medical science, was very willing to learn, but that I would like to know what the gentleman referred to expected to accomplish, and for this purpose requested a personal conference with him. The patient, amongst other things, had a dense fibrous stricture in the deep urethra, the canal barely admitting a No. 4 (English) sound.

On meeting the osseous practitioner I explained to him the pathologic condition in the urethra and asked him to explain to me what he expected to accomplish by manipulations applied to the spine. I was then treated to one of the most befuddling discourses that I ever heard. The real anatomy of the region involved, the phenomena of inflammation and its results, the actual blood vessels and nerves concerned were ignored, and instead followed a senseless harangue about "dislocated vertebrae" and other imaginary conditions. The patient, however, was profoundly moved by all this nonsense. The further the illiterate dabbler wandered from the subject the better he seemed to like it. On leaving the conference, arranged for my enlightenment, I reached the conclusion that profound ignorance is harder to acquire and maintain than moderate wisdom.

The medical profession is often charged, not always unjustly, with being narrow and intolerant, but after carefully investigafing the above case my conclusion is that the "physician" who undertakes to cure a perineal stricture ought to be at least narrow enough to pay some slight attention to the part affected. Treating an obstruction in the trachea, an opacity in the lens, an occlusion of the bowel and a stone in the bladder by laying hands on the spine does, I confess, appear a little too broad for those medical gentlemen whose association I am permitted to enjoy.

Howard Crutcher.

Chicago, December, 1903.

County and District Societies.

Fayette County Medical Society.

Regular meetings are held in Vandalia the second Wednesday of January, April, July and October. Membership 20.

Officers.

President ..... Moses Haynes, Bingham
Secretary ..... A. L. T. Williams, Vandalia
Treasurer ..... H. D. Smith, Vandalia

At a meeting held July 8, 1903, Dr. F. Buckmaster, of Altamont, read the following paper on **Cutaneous Tuberculosis and Blastomycetic Infection, with Some Points as to Their Differentiation.**

Cases representing our subject are quite rare, as is also the literature of such cases, but I am

inclined to believe that such cases probably are often overlooked. Our case today, gentlemen, is one that, clinically, we might diagnose either as cutaneous tuberculosis or as blastomycosis with good reasons for so doing, yet by microscopic examinations of the pus present in the lesions we detect the tubercle bacilli, but fail to find any other organism present. Therefore, I will make the article as brief as possible consistent with giving a good working knowledge of the two infections under consideration.

Case History. Patient-male, age 13, father and mother living; is the oldest of several children in the family. Has been fairly well up to two years ago, except for the usual diseases of childhood, yet he has never been a stout boy.

Family History. Tuberculosis has existed plentifully in family relationship of both branches of his parentage. His mother is tolerably stout only. His father lately consulted me for a gastric disorder which I found to be gastric ulcer. His mother's parents and grand parents are all living. The other children in same family are fairly stout.

History of Boy's Illness. Two years ago a lesion somewhat elevated appeared on the anterior surface of the right arm about medium distance between shoulder and elbow. The lesion is now about an inch long, bluish in color, somewhat elevated, and soft. It never pained much but has felt somewhat sore at times. This lesion about a year later was followed by a gradually increasing swelling in left inguinal region and before it "broke" and discharged pus, the boy says the swelling was like a cob lying along pouparts ligt. There is a small channel or fistula left yet at the bottom of the scar. (No. 2.) Following this lesion last January were the others now seen on the abdomen below the umbilicus, over the thighs and posteriorly on the buttocks, especially on the left side. On this left buttock, especially laterally, (shown in Post. View in picture) are a great many small lesions, apparently recent. One small one also exists in the suprascapular region of right side. This he did not know he had. One large lesion is found on the dorsum of the left foot and one over the right ankle on outer side. Some of these lesions are as large as dollars, all are bluish in color and elevated and all are soft and easily penetrated by a probe and nearly all, especially the larger ones, contain pus. Some of the lesions are crusted over on the top. In the skin of the lower limbs, especially posteriorly, the veins are very plainly seen, the skin being quite transparent, this being the case more or less all over him. Has complained of much cough and expectoration for over a month now. I find slight infiltration of right apex, heart rapid and somewhat weak. Other causes for cough in lungs absent; irregular breathing present, kidneys normal, liver and spleen very slightly enlarged, appetite poor, abdomen and its contents otherwise seem normal. The boy is weak, has lost flesh and has felt sick for two years, yet he has not been treated all of this time. Hb. estimate 55 per cent. Bowels active, sleeps fairly well. Diagnosis either blastomycosis or subcutaneous tuberculosis, probably the latter. By microscopic examination I find tubercle bacilli, no strepto or staphylococci and no blastomyces, proving it not to be blastomycosis. For lack of time I did not make a blood count nor examine the sputum for bacteria, though the cough and sputum are seemingly very characteristic of tuberculosis as is his appearance in general.

This boy had been treated for furunculosis before I saw him, if we are to credit his statements as well as those of his parents. To differentiate in this direction would hardly seem necessary, yet since such a diagnosis has been made, we would easily exclude that disease by noting that the primary lesion began two years ago, being followed nearly six months ago by other lesions, not one of which has disappeared, either under medical or surgical treatment. The appearance of the lesions, their history and

especially their bacteriology more than easily excludes "boils." Then to consider what it really is we would begin by the statement that **Cutaneous Tuberculosis** is not a common disease, and is one presenting many difficulties to the general practitioner, especially in the way of diagnosis.

1st. Because of the great number of varieties which we find clinically.

2d. Because of the scarcity of the literature on the subject, and

3d. Because of the rarity of the disease itself.

One recent writer classifies skin tuberculosis into twenty-three different forms, all of which are more or less rare, lupus vulgaris being much more common in some of Europe's great clinics than in our own country. Not more than six or eight cases representing some of the rarest forms of this disease have ever been recognized, therefore, we will endeavor to simplify matters by a brief consideration of the commonest forms and of its general characteristics. The first form with which the general practitioner should be familiar is **Lupus** of which we find three forms, viz.: L. Exfoliativus, L. Exulcerans or Vulgaris, and L. Hypertrophicus, the L. Erythematosus having nothing to do with skin tuberculosis. In **L. Exfoliativus,** red or yellowish brown spots are formed with a fissured or exfoliating epidermal surface. In **L. Vulgaris** we find the disease beginning in early life, its onset in adult life being very rare; it frequents the face and is characterized by a chronic inflammatory process forming brown-red nodules with a tendency to ulceration and subsequent cicatrization. When the tendency to ulceration is excessive it is called **L. Exedens.** When the amount of granulation tissue is a prominent feature, with very little tendency to ulceration, it is called **L. Hypertrophicus.** In examining the advancing edge of lupus we find nodules set in the skin like wax, varying in size from the head of a pin to that of a split pea. They are soft to the touch, perhaps they could scarcely be felt with the eyes closed, while syphilitic or other papules or nodules are hard and plainly felt. This soft papule is as characteristic of skin tuberculosis wherever found as is the fact also that when rather lightly pressed upon by a bead-pointed probe, the latter penetrates the lesion, being followed usually upon its withdrawal by a drop of dark red blood, but in this case we get pus. This means of differentiation is little appreciated in this country it seems, but is much relied upon in some of Europe's large clinics. This is not the case with the other three forms of ulceration here to be differentiated, viz.: syphilitic, epitheliomatous, or that due to blastomycetic infection. Another point of interest is that lupus rarely ever attacks or destroys bone, but will destroy cartilage, a fact often differentiating it from tertiary syphilis, especially about the nose. For a further discussion of lupus I must refer you to our standard books and journals. The second form likely to be met with by the general practitioner is **Tuberculosis Verrucosa Cutis,** which is caused by inoculation of the skin with bacillus tuberculosis. This inoculation may take place in any one of a number of ways and is most often met with on face, hands, or about anal or genital regions, but may occur on any part of the body. Tuberculosis by inoculation usually presents itself in the warty form of which there are three varieties, viz.: Verruca Necrogenica or anatomists wart, lupus sclereux of Vidal, and tuberculosis verrucosa cutis, which was first discovered by Riehl and Paltauf in 1886. It is now known that these three forms so called are only different stages of the same disease. It is an affection which develops slowly and lasts for years. In some cases a lymphangitis extending up the extremity accompanies the lesion and here and there along the course of the swollen lymphatics, tubercular deposits develop, which fluctuate and finally form abscesses. This is known as gummatous lymphangitis and often leads to pulmonary involvement.

The anatomists wart usually occurs on the arms, back of hands, or fingers of physicians or nurses, and at first looks like a cluster of inflamed warts. Erythematous patches and pustules may also be present. It is to be distinguished from the common wart by the length of

time it has existed, by the area of blueness which surround it, by the fissures which penetrate its substance, and by the miliary tubercles which at times may be seen at the bottom of these fissures. When the plaques are of dollar size or larger they present an outer zone of a bluish color studded here and there with minute abscesses, the contents of which should be examined for tubercle bacilli, and other microorganisms, a middle which is usually an ulcer covered zone with warts and a central zone which is made up of scar tissue. This form can only be distinguished from blastomycetic or verrucous dermatitis, the latter usually due to streptococci, staphylococci or colon bacilli by microscopic examination of the pus and tissue.

A third interesting form and the form which is represented by the case before us today is the **Subcutaneous Variety** which is the most common of all cutaneous tubercular infections. The tubercular deposit which is located immediately beneath the skin may break down and form an abscess, the cold abscess of older writers. It may give the sensation of fluctuation on palpa-

tion with out the presence of pus just as tubercular granulations in a joint often do. This form is known as scrofula-tubercular-gummata, being so named by the French school. You will note the characteristic bluish color, the soft easily penetrated lesions, the chronic course and appearance of the lesions present, as well as their location and the breaking down of their contents, also the appearance of the patient and his family history count much in summing up his trouble, particularly as regards the prognosis. Fortunately for the patient but unfortunately for us, under the treatment the lesions have rapidly lost their characteristic appearance are less tender and are drying up and becoming much more solid, thereby, making the sensation to the touch and to the probe tests somewhat impracticable at this time. You will note that many of the smaller lesions have practically disappeared leaving a bluish red spot. The lesions so disappearing were the small and more recent ones. When a scrofula-tubercular gumma is superficial and of disc form, that is, like a silver dollar set under the skin, the epidermal covering is of a bluish color and the granulations present may produce some fluctuation and the lesion is soft. The lesions may be limited to the face and be but one or two in number or they may be disseminate. The skin covering the subcutaneous deposit may be destroyed by ulceration leaving a denuded surface from which luxuriant granulations spring up forming a tumor-like mass which projects above the surface of the skin sometimes to a considerable extent. This is **scrofula-derma.** Another form which subcutaneous tuberculosis sometimes assumes is the formation of tumors of a bluish color which are pea-sized and larger. They project above the surface of the skin and are most frequently seen on the legs and thighs of children. Primary tuberculosis of the panniculus adiposus is observed, particularly in children in the form of flat subcutaneous nodules which gradually soften and break down and discharge. In some cases the pus may burrow extensively without coming to the surface. A fourth interesting form is the **Tubercular Follicles.** This variety is supposed to be caused by toxins absorbed from a tubercular focus, acting on the skin, a patient may have tubercular glands of the neck and toxins absorbed from these may produce eruptions of the skin. These eruptions are called follicles, dermatitis nodularis necrotica, tuberculides, paratuberculosis, and many other names, more than twenty in all. Individual cases of this form differ widely, but it usually occurs on the extremities, particularly the lower, in a papular form leaving a scar on its disappearance. It looks not unlike acne vulgaris, and these lesions are usually distant from the primary affection. Chilblains are sometimes produced by tubercular toxins and so may these lesions simulate lupus Erythematosus.

Diagnosis.

After a clinical examination of the local lesions here presented, and of the patient, one would not hesitate to diagnose these lesions as being either tubercular or blastomycetic infection. Without going into details one would most likely place the blame on the side of tuberculosis.

1st. From the appearance of the lesions, especially No. (2).

2d. From patient's age, tuberculosis not being uncommon at this age relatively speaking, while blastomycosis has never been recognized in patients younger than twenty.

3d. Location of lesions, not uncommon for subcutaneous tuberculosis in children but is an uncommon location for blastomycosis the latter appearing usually on exposed parts such as the face, neck, hands, etc.

4th. The family history; tuberculosis being present in both branches of his parentage, a not unusual history in tuberculosis, but uncommon in blastomycosis, only five cases out of thirty-two having tuberculosis in the family tree.

5th. From the boy's general appearance, his make up and the threatened break-down of pulmonary apices which we would not expect in blastomycosis, as only two cases of blastomycetic infection of the lung, I believe have been recognized, one thought to be primary and the other known to be secondary to skin lesions. One known case of blastomycosis has been followed by tubercular break-down. Yet with all this seemingly good evidence in favor of tubercular infection, we are not justified in making a diagnosis without a microscopic examination of the pus present and of the tissue and if necessary making cultures and guinea-pig experiments, but in the latter procedure one must for a correct diagnosis rely upon the microscope and upon obtaining new cultures of the same organism used in the inoculation process. As a reliance upon gross appearances and symptoms in the inoculated pig will likely be very misleading.

I should like to have something to say concerning blastomycetic infection, to be able the better to make the case before us as plain as possible in the light of a differential diagnosis. Since his lesions must be either tubercular or blastomycetic. Not alone is this differentiation of diagnostic importance, but our therapy is one of the rarest games of chance if we fail to recognize the true nature of the lesions presented.

I would first say that as in cutaneous tuberculosis the literature upon the subject of blastomycetic infection is much limited, though a few good articles have recently appeared in the current medical literature, the best probably being that of Dr. Gilchrist of Johns Hopkins University to whom the name owes its origin. Senn in the recent edition of his Principles of Surgery, and Dr. Hyde in the last edition of his Treatise on Skin Diseases, have each presented a good article on the subject. Many able men but a short time ago regarded this disease as being connected with cutaneous tuberculosis, and some even regarded it as having a connection with syphilis. In thirty-two reported cases, in five only is there any family history of tuberculosis. Of these thirty-two cases, twenty-eight gave no evidence of tubercular or syphilitic infection. That the disease is not a syphilitic or tubercular infection is now proven beyond doubt. That it is a local infection of yeast mold fungi now seems likely. There are now several varieties of these organisms which are supposed to be cap-

able of causing the disease. They are almost always found in the budding stage, usually occur in pairs of unequal size, but may occur single or in groups, are doubly contoured, highly refracting bodies five to twenty microns in diameter and may be seen well in unstained preparations, or when stained with methylene blue; they may be found in the pus or tissue. Beer-wort gelatin is the most favorable culture media.

Satisfactory animal experiments have been made, the lesions reproduced as in man, from which the organism has again been cultivated. Hence to-day blastomycosis can probably be regarded as a distinct Entity, notwithstanding the fact that some Eastern and European clinicians stand contrary to this view. No case has been seen under twenty years of age, most cases are at or above forty and some few have occurred in old age. More men than women are affected, perhaps due to a greater exposure to infection in the former. Our section of the United States seems a very favorable locality, as most cases have been reported from Chicago. Some writers regard the protozoic infection as being the same disease as blastomycetic infection merely modified by climate, California being the origin of the latter. The family and individual history have little or no bearing on the disease, nor can any definite relationship be established as regards nativity or habits of the patients, yet most of them are laboring people. No constitutional disorder has been noted which could have any bearing on the origin of the cutaneous lesions. Traumata probably have something to do with the primary infection. The disease is said to be auto-inoculous, and one case is reported wherein a physician contracted the disease at the site of a slight injury received while holding an autopsy on a patient who had died of blastomycetic infection. No two cases of this disease have ever occurred in the same family. Blastomycetic infection may occur in the bones, as reported in one case, in lymph structures, as reported in two or three cases in lungs, as has occurred in two or three cases, in liver, spleen, kidneys, etc., of same patient as has occurred a time or two, or of peritoneum, as has once occurred, but the mucous membrane has remained free from infection. These internal infections have been secondary to that of the skin, unless it be in the case of peritoneal involvement, as well as one of the pulmonary cases, in which the disease was thought to occur primarily in the lungs, yet it was accompanied by skin lesions of the same infection. Bushke divides the disease into three types (a) Blastomycetic septicaemia, (b) localized infection, and (c) the typical slow growing blastomycosis—the skin lesion. Blastomycosis is primarily a disease of the skin (also where the disease gains entrance to the system)—a dermatitis in its origin and career corresponding to a local infectious process having a chronic course. The disease begins in a papule or papulo-pustule, which soon becomes covered by a crust. The lesion slowly enlarges peripherally in the form of an indolent flat wart-like or crusted papule; as a rule the disease spreads over contiguous areas from the site of the original papule, but in a few cases new foci have appeared and coalesced with the old. In lesions that have attained the diameter of ½ inch or more the following characteristics are apparent. The patch is elevated from ⅛ to ⅜ of an inch above the surrounding skin. The surface is covered by irregular papilliform elevations, separated by clefts or fissures of varying depths, giving it a verrucous appearance. In the recent lesions and near the border of the older ones, especially of those which have been kept clean, the papillary projections are fine and the surface fairly firm, dry and wart-like. Portions of larger lesions, and especially those which have been untreated, are covered by more or less bulky and adherent crusts, on removal of which the papillary elevations are seen to be larger, lobulated, even subdivided and bathed with a sero-purulent secretion. Some of these crust-covered projections bleed easily. In exceptional instances the area under a crust may present the appearance of an ordinary unhealthy ulcer with exuberant granulations. Brayton, of Indianapolis, says: "If, on any part of the body, notably the exposed parts, a portion of the skin presents pustules, followed by small crater-like ulcers, which coalesce, causing progressive destruction of the skin, blastomycosis should be suspected." He also says that, "the occurrence of multiple acneoid pustules in close proximity to each other, occurring in unusual localities, unsymmetrically distributed and followed by necrosis and punctiform excavated ulcers, should call attention to the probability of blastomycosis." The base of the active lesion is always soft and more or less infiltrated with sero-pus, which on slight pressure oozes out between the papular elevations. In older lesions the papillomatous surface may be replaced in part with a thick elevated scar-like formation, pinkish white in color, irregular and often corded, but having a smooth, shining surface. The border of the area is one of the most characteristic features. It slopes more or less abruptly from the elevated roughened surface to the normal skin, from which it is sharply defined. It is smooth, of a dark-red or purplish color, is from ⅛ to ⅜ inch wide, and on close inspection is seen to be set with a large number of minute abscesses. Some of these abscesses are too small to be seen by the unaided eye. Some are as large as a pin head, some are superficial, but many, especially the smaller ones, are deep-seated. When punctured with a needle a glairy muco-pus exudes, in which the causal organisms are best studied. Abscesses of the same sort are seen also in other parts of the growth and not infrequently on the thick scar like tissue described above. Usually it requires a number of months before the original patch attains a diameter of an inch or two. It may remain indolent for months or years with irregular periods of activity and progress. The majority of the lesions attain the size of a dollar on the palm, and some get much larger. As the disease extends at the periphery healing frequently occurs in the central portion. In this manner large areas may be involved in various stages of the process. Healing may occur spontaneously, but whether spontaneously or from treatment, the first indication of heal-

ing is found in the gradual flattening and disappearance of the papillary projections, partially by absorption and partly by dessication and exfoliation. At the same time the amount of the secretion from the underlying base diminishes and the whole patch assumes more of an ordinary Verrucous appearance. In many instances the papilliform surface is replaced temporarily by the hypertrophic scar-like tissue described above, which in turn gradually disappears and gives place to the characteristic cicatrix which eventually becomes soft, supple, nonattached, pinkish-white, and on the whole very inconspicuous, though sharply outlined from the surrounding skin. As a rule the resulting deformity is very slight. It is not uncommon to see areas that have apparently healed, again become more or less covered with actual points or areas of the disease, because of the fact that minute abscesses may often be found imbeded in the scar-tissue of the old lesion, which serves as an infection atrium in lighting up the disease anew. Pain may be very severe in well advanced progressing lesions and may lead to the continuous use of opiates, or as in the less severe cases, it may amount to almost no discomfort whatever. The histopathology of this disease is very interesting, but for lack of time we must omit it.

Differential Diagnosis: In differentiating blastomycosis from those tubercular lesions most closely simulating it, one depends upon the characteristic border and the deeply set miliary abscesses, which in so far as is known at this time, I believe are considered peculiar to the former disease. The therapeutic test and the soft, supple, pinkish-white, nonadherent, slightly disfiguring scar—the latter differing widely from tubercular scar—are an aid in diagnosis. Adenopathy is very rare in blastomycosis and common in tuberculosis, while constitutional symptoms of blastomycosis are quite rare, also, and depend upon metastasis from the primary skin lesions. But to settle the diagnosis, one must depend upon the microscopic findings of pus and tissue taken from the lesions, more especially that from the advancing border.

Prognosis.

Death due to skin lesions alone in blastomycosis, I believe, is unknown, but death is caused by metastasis in internal organs which is much more likely to occur in man than in animals, or to complications—tuberculosis having once caused death of a blastomycetic patient. In tuberculosis there is a grave danger of systemic infection or break down following the cutaneous lesions or the former may precede the latter.

Treatment of Blastomycosis: An early recognition of the primary lesions and their appropriate care, not only to cure them, but by so doing to prevent metastasis, cannot be too much insisted upon; locally, keep the lesions clean and remove them surgically, if possible. If impossible and the lesions are very painful, one had best use caustics or the cautery to destroy them, which stops the suffering. X-ray may do some good. Curetting the lesions is thought to be bad practice, as it has seemed to promote dissemination and internal metastasis, which will probably be fatal. Inwardly, Iodid of Potash, possibly up to 200 to 500 grs. a day, which always does good and may so nearly heal cutaneous lesions that the balance can be eradicated by excision. Look after the patient's hygiene. In **tuberculosis of the skin**, local treatment, such as 25 per cent of guaiacol in olive oil, the X-ray, cleanliness, etc., probably may help, yet sunshine, outdoor life, six to twelve raw eggs in milk each day, plenty of good butter, hygienic surroundings in general, and plenty of recreation, rest and sleep—in fact, anything that builds up the system, we should regard as our mainstays. Some lesions may be removed surgically and the X-ray may benefit some lesions, especially lupus. Inwardly care for the stomach, secretion and excretion, and a little tonic treatment, chosen from the list of irons, arsenic, guaiacol, gaduol, codliver oil preparations, hypophosphites, strychnine, etc., upon indications, is the finishing touch in the way of treatment.

I gave this boy 12m Tr. ferri chloridi and 5m Lig. Potass. arsenitis in water 1½ hours after meals. One dram of syr. of hypophosphites in water ½ hour before meals. Regulated his habits and diet and did nothing to the skin lesions except to puncture some to obtain some pus for microscopic diagnosis.

At this time, December 1, 1903, the case above referred to is practically recovered. He is quite stout, has gained much flesh, blood and urinary tests practically normal, and the skin lesions proper have all disappeared, though the characteristic bluish-red scars mark the former site of the lesions. Lungs and other internal organs now normal.

Another interesting case of skin tuberculosis I saw on the 4th of last July (since preparing this article). Case: A male, about 40 years old, a veterinary surgeon, and in good health. About six weeks previous, developed a growth, hazelnut in size, on the dorsum of the right hand, corresponding to the second metacarpal space. His physician had given him salves to apply, and a few days previous to the patient's visit to me, his physician had roughly examined the hand, making undue pressure in palpating it, which was followed by a swelling of the whole hand. On his visit to me, the hand was considerably swollen, of a dark-red color, the area surrounding the growth being bluish in color. The warty growth itself was superficially fissured, though one deep fissure divided it deeply, separating it into halves, though this resulted from the previous attendant's rough handling. It presented all the appearances of the tubercular wart, upon which suspicion I widely removed it with the scalpel, afterward dressing the hand in a hot, 50 per cent alcohol dressing. The swelling subsided, the wound healed nicely, and at this time it seems a perfect recovery. A subsequent microscopic examination of the removed tissue revealed tubercle bacilli rather plentifully.

I sometimes wonder when we, as physicians, will learn and practice careful palpation of infected tissues or regions. How easily a localized infection may be disseminated by a rough,

squeezing, unscientific sort of handling, by some styled palpation.

In preparing the above article I have referred freely to writings of Gilchrist, Brayton, Hyde and Montgomery, Jas. W. Walker, H. G. Anthony, N. Senn and others.

Bureau County Medical Society.

Regular meetings held in Princeton the second Thursday of November and May.
Membership 40.

Officers.

President ..... J. H. Franklin, Spring Valley
First Vice Pres. ..... C. H. Kemp, Tiskilwa
Second Vice Pres. ..... J. C. White, Seatonville
Sec'y and Treas. ..... O. J. Flint, Princeton

At the meeting held Nov. 12th, the following papers were read:

Cystitis.

F. Kreissl, Chicago: Although every cystitis is of a mycotic origin, the mere presence of the microbes in the bladder is not sufficient to start the inflammation. The concurrence of several conditions is necessary to produce cystitis. Among these may be mentioned lesions of the mucous lining and the submucous tissue, congestion in the bladder wall, and urine retention. Yet we frequently see complete retention existing for a number of years without ammoniacal decomposition of the urine or cystitis, and the same applies to traumatic lesions of the mucous membrane caused by the presence of concrements in the bladder, as long as pathogenic germs do not enter it. Only in this way we can explain those cases in which, in spite of careless catheterization for a long time, cystitis does not appear, while in others, notwithstanding the greatest care, cystitis sometimes is observed because retention and congestion have prepared the ground for the infection. The latter may enter the bladder cavum, (a) ascending from without through the urethra; (b) descending from the kidney through the ureter; (c) embolically through the circulation into the tissue and by immigration of the microbes from adjoining organs penetrating the bladder wall.

The ascending infection is mostly of gonorrheal, much rarer of a tuberculous, nature. The microbes take possession of the viscus by immigration from the urethra after having existed there for a while, or they are brought into the bladder by instruments. The gonorrheal infection of the bladder was not recognized up to a few years ago, and it must be admitted that the majority of these cases owe their origin to a mixed infection. Yet Wertheim's investigation, who obtained from the excised portion of the inflammed bladder wall a pure culture of the gonococcus, where gonorrheal urethritis had preceded the bladder symptoms, proved conclusively the existence of true gonorrheal cystitis.

The ascending tuberculosis of the bladder, which, according to recent investigations, most frequently originates in the epididymis, also immigrates into the bladder through the prostatic urethra and establishes itself in the fundus. This is of differential diagnostic value, for those who are familiar with cystoscopy, as tuberculous ulcers and tubercles situated in the posterior wall speak for ascending or primary tuberculosis of the bladder, while when located around the ureteral mouth, descending tuberculosis may be well suspected. Notwithstanding these germs traceable to a distinct pathologic process, the normal urethra is inhabited by a collection of pathogenic microbes, in all probability entering it from the preputial sac and the vulva, which, when carried into the bladder by instruments or irrigation fluids, under favorable conditions may start a cystitis.

It also requires mentioning that infection from outside occurs through septic instruments, and likewise fluids used for bladder irrigation, and also through septic lubricants. The shortness and wide lumen of the female urethra and the lack of a proper sphincter apparatus will explain the frequency of spontaneous cystitis caused by the immigration of the colon bacillus, of which the vagina and vulva abound.

Lesions of the bladder wall are of traumatic, idiopathic or embolic nature. Traumatism occurs from without the viscus or within. The more common forms of traumatism are the protracted act of labor, the manipulation with obstetrical instruments, careless and forcible intravesical procedures with cystoscopes, catheters, sounds, lithotrites, etc., etc., and the presence of stones and foreign bodies in the viscus.

Among the idiopathic and embolic lesions I would mention the simple ulcer, the leukoplakia and the syphilis of the bladder. We know different types of simple ulcer. The first, ulcus simplex chronicum, appears in bladders not affected by cystitis; it remains latent without any symptoms until pain and hematuria point to its presence; much later cystitis and pyelonephritis set in. If recognized in time, it can be easily cured; if let alone, tuberculosis or carcinoma might develop from its basis. The ulcus simplex acutum is of a gangrenous character, leading to perforation, often times as rapidly as the ulcus ventriculi. It remains latent and is not recognized until symptoms of perforation peritonitis and internal hemorrhage call for abdominal section.

Syphilitic cystitis is a rare form of visceral syphilis, but not so very rare, if one would take pains to inquire for a previous syphilis in every dark case of cystitis. It appears usually as a gummatous deposit in the bladder wall, or as an interstitial process.

The most prominent symptoms of acute cystitis are tenesmus and dysuria; both are produced by the increased sensitiveness of the inflamed bladder, which responds with violent contractions to a degree of tension not perceptible under normal conditions. This dysuria disappears at once upon opening of the bladder or the placing of a catheter **a demeure** in the viscus, though the inflammation is still present. I emphasize this and a few other points because their correct understanding furnishes valuable directions regarding the treatment of cystitis. The most useful objective symptom is the peculiar condition of the urine. There is no cystitis with an absolute clear urine, consequently we find more or less cloudy urine in proportion to the grade of inflammation. The turbidity is due to the amount of pus, sometimes mixed with blood, and crystalline or amorphous material.

Microbes are a constant part of the urine in cystitis.

The reaction of the urine is of very little value for the determination of the origin of the pus, and it is impossible to positively state that alkaline reaction speaks for cystitis, while acidity points to pyelitis. The alkaline reaction of pussy urine depends on the presence of urea decomposing germs and the time they are allowed to exert this quality on the urine while in the urinary passages. Thus it happens that in uncomplicated cystitis acid urine is voided in spite of the presence of urea decomposing microbes, while in a retention bladder caused by strictures, paresis, prostrate hypertrophy and diverticle the reaction will be alkaline. Likewise we find in renal suppurations, from cystic degenerated kidneys from a dilated renal pelvis, in ureteral obstructions, ammoniacal urine, even when a co-affection of the bladder is excluded with absolute certainty.

On the other hand, urine of alkaline reaction is found in cystitis caused by not urea decomposing microbes, but the urine contains carbon phosphates or neutral phosphates. Red litmus paper turned blue by such urine retains the blue tint when dried, while the blue tint disappears under the same process if caused by ammonia, the latter being volatile. Constant acidity of the urine in cystitis is characteristic in colon bacillus infection and tuberculosis. The latter especially possesses the faculty of keeping the urine acid, even in the presence of urea decomposing germs, which characteristic has led us to diagnose tuberculosis in those cases of cystitis in which no microbes at all are found, but as a constant symptom an acid urine loaded with pus.

The question of the presence and the quantity of albumin in the urine is of great importance because it tells us better than anything else—except ureteral catheterism—whether the infection we are studying is of the bladder or the kidney. In the examination of the urine with reference to the grade of pyuria and albumin, we have a very satisfactory and simple means of differentiating cystitis and pyelitis, and one which in the majority of cases will give accurate results. Pyuria due to cystitis, even of high grade, is associated with but a small amount of albumin—unless accompanied by hematuria. On the other hand, in all cases of pyelitis, even if the grade of pyuria is low, there is always, or at least almost always, a considerable quantity of albumin present.

In the chronic form of cystitis, one or the other symptom might be less accentuated or disappear for a while, until by some cause a relapse occurs which practically is nothing but an exacerbation of the old latent cystitis. This is frequently observed in gonorrheal cystitis of the trigone, in chronic vesical ulcerations, and in cystitis of the vesical neck. These are the cases which puzzle the physician, and which can only be recognized by the aid of the cystoscope. In a paper on vesical ulcerations, which I read in the Chicago Medical Society about four years ago, I have expressed myself on these conditions quite extensively. The presence of pus in the urine alone does not permit a diagnosis of cystitis, although it is often done. It might be due to the presence of a nearby abscess cavity connected with the bladder, as it occurs in perityphlitic abscesses in pus tubes or in suppuration of the prostrate and seminal vesicles. That tenesmus and dysuria are not symptoms exclusively peculiar to cystitis, but are also characteristic of pathologic conditions in the ureter and renal pelvis, is well known, and therefore cannot be used as significant of cystitis in the absence of other symptoms. Only a summary of all the subjective symptoms taken together with a chemical microscopical, and bacteriological study of the urine will help us to establish the diagnosis of cystitis, but if we wish to proceed scientifically and trace the cause of cystitis, which practically is but a symptom, we will have to employ the aid of the cystoscope and eventually ureteral catheterism. The cystoscope demonstrates to the eye the typical gonorrheal lesions in the trigone, the ulcerations in the bladder wall, and their different characteristics; the presence of stones and diverticula, and the entrance to abscess cavities. The catheterism of both ureters puts us in a position to positively ascertain if the pus and blood in the urine come from one or both kidneys, or if its source is the bladder alone. With this remark, I do not advocate the indiscriminate employment of cystoscopy, but I plead for it in cases in which the diagnosis is not absolutely clear from the beginning, or where the symptoms do not yield to the treatment in a reasonable time. Here let me call your attention to the close relation between the vesical sphincter and the adjacent rectal tissue. Proctitis, rectal fissure and ulceration, inflamed hemorrhoids, produce sympathetic tenesmus and other vesical symptoms, especially in the irritable bladder of neurasthenic individuals, and many a stubborn so-called cystitis, cystospasms, and other conditions referred to the bladder will rapidly disappear upon an inspection of the rectum and its proper treatment.

There are two main principles in the treatment of cystitis, no matter what the particular nature of the disease be, and they are local and general. The popular one, and, as I believe, the less efficacious of the two, is the general treatment by medical and hygienic measures. While the general principles may not be altogether neglected, a local antisepsis of the infected bladder is of primary importance, and is of such simplicity as to be within reach of every practitioner. I do not under-estimate the value of internal antiseptics and diuretics; it is possible to make the urine a less favorable medium; we can flush out the kidneys, but neither the stomach nor kidneys are tolerant of large quantities of santol, salol, boracic acid, benzoic acid, and urotropin, and the quantity must be large to act effectively upon a process in the bladder.

Where these remedies, when employed exclusively, gave satisfaction, a close scrutiny of the case would have demonstrated a pseudocystitis, as we find them when irritating substances are eliminated through the urine, causing congestion of the mucosa or after exposure, cold, etc. One of the symptoms of acute cystitis, the bladder's intolerance of tension, gives the key to its treatment, and also the reasons

why we should refrain from a medication which increases the secretion of the urine, and with it the desire to urinate, and the painful contraction of the bladder. Large and even moderately small local injections are for the same reason objectionable. We must employ the method of instillation, of applying locally drop by drop the active medicinal solutions to the inner surface of the bladder wall. The strength of these solutions used, the small quantity of fluid instilled, and the slowness with which one by one they enter the viscus, are the important points to be attended to. Instillations should not be hurriedly given, or they then become injections; the solution, though by no means always a caustic one, is far stronger than could be used in the form of an injection, and this constitutes the chief virtue of instillations. The instruments required are a small graduated syringe, and the instillator, which is a perforated, gum elastic, olive-tipped bougie. In Guyon's syringe the content is one dram. In the first place, the bladder, as in all instrumentation of the urethra, should be empty. The quantity used should never exceed one dram. The strength of the solution that may be used is as great as its quantity must be small. While the bladder could not be irrigated with a nitrate of silver solution stronger than 1 in 500, instillations of from one to five percent may be used with perfect toleration. Injections of solutions of 1 in 20000 of bichloride of mercury may be used, but as instillations the strength of 1 in 5,000 and 3,000 is of daily use, and some patients even support 1 in 1,000. The substances that will be found most satisfactory may be divided into (1) anesthetics, and (2) antiseptics.

1. Anesthetics are very valuable as treatment in themselves and as a preliminary to instillations of more or less painful solutions. In mild cystitis, where there is no excessive tenesmus to tension, antipyrin in ten times its weight of water renders the mucous surface of the bladder less sensitive to the subsequent application of nitrate of silver. In very acute cystitis guaiacol is superior to antipyrin, and cocaine, especially in the formula of Pirot: Iodoform, 1 part; guaiacol, 5 parts; sterilized oleum benne, 100 parts, of which solution one dram may be injected three times daily without any inconvenience. Great care has to be exercised in applying cocaine to the bladder cavum, on account of its ready absorption from raw surfaces. A good rule is never to exceed the injection of one and one-half to two grains of the drug.

2. Antiseptic Instillations. Perchloride of mercury in solution of 1 in 5,000 or 1 in 3,000 will be found of great service, especially in the constant and often prolonged agony of tuberculosis cystitis. Nitrate of silver is perhaps the most valuable local agent in the treatment of cystitis. The more acute, the more painful the cystitis, the more frequent the desire to micturate, the more clear is the indication for instillations with nitrate of silver, hence its effect little short of astounding in acute gonorrheal cystitis.

In the more chronic state irrigations of the viscus become necessary when viscid pus clinging to the bladder wall or mineral deposits in a diverticle call for a thorough cleansing preceding other topical applications. But even then one should never inject more than two ounces at a time, because the bladder muscle reacts differently towards slow or rapid tension, a fact of which one may convince himself by rapidly filling a normal bladder with ten ounces of fluid. There will be tenesmus for quite a while afterwards, while the same bladder does not take notice of such a quantity if accumulated in its viscus in the natural way and time. The result of such rapid filling of a diseased bladder is seen in renewed congestion and secretion, and many a protracted cystitis is due to this procedure. Morever, the cleansing of the bladder wall is much more thoroughly accomplished by small and repeated flushings than by a few large ones. For all these reasons a sterile piston syringe is preferable to the time-honored irrigation can. Chinosol and pyoctanin in a solution of 1 in 4,000 will have a marked deodorizing effect on a very offensively ammoniacal urine. Salicylic acid in solutions of 1 in 3,000 dissolves phosphatic debris and renders the alkaline urine neutral or slightly acid. A saturated solution of boracic acid or a solution of 1 in 3,000 of acetate of lead has a soothing effect in simple congestion of the mucosa associated with a mucous secretion, but it is of no antiseptic value.

None of these applications will be of assistance by virtue of their deodorizing, astringent and slightly antiseptic effect; the profuse flushing of the viscus does partly remove numbers of pathogenic germs, but to obtain a pronounced benefit they must be followed by the above mentioned instillations.

If with all these procedures no marked improvement be noticeable within a reasonable time, one has to resort to cystiscopy to clear up the real condition back of the symptomatic cystitis, which is not emenable to a radical cure unless the original cause be removed.

Stones will have to be crushed or removed by lithotomy. Ulcerations must be curetted and cauterized through the operative cystoscope, or excised through a suprapubic or a vaginal opening, as the case may require, and a rebellious cystitis dolorosa, where the whole bladder wall represents a large sloughing ulcer, requires broad incision and drainage, like any other abscess. Topical applications and internal medication will fail when strictures, prostatic obstructions or a diverticle maintain in a pool of stagnating residual urine an excellent culture medium for microbes, and it will be impossible to return in this way the bladder wall to normal conditions if a continuous or interrupted stream of pus from adjacent organs or from the upper or lower urinary ways floods the barely cleansed vesical cavity. Neither will local treatment in secondary tuberculosis cystitis be efficient, unless we support the reconstructive power of the tissues by a general hygienic treatment of the system.

In closing, I wish to say that I know I could have said much more on this very interesting subject, but in doing so would have trespassed on your time and patience. My object was to call your attention to a few salient

points in the etiology, diagnosis and treatment, as they might be serviceable for the practitioner, in this widespread ailment, and who does not possess the facilities of all the complicated appliances and the experience of the specialist.

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Olshausen's Technic of Caesarian Section.

Denslow Lewis, of Chicago, spoke of modern Caesarian section. He insisted on the performance by the general practitioner of this truly life-saving operation, in suitable cases, as freely and readily as an amputation of a leg or the reduction of a dislocation would be undertaken in an emergency. During the past year spent by the speaker at the University of Berlin the opportunity was afforded of witnessing 14 Caesarian Sections in the Frauenklinik of that city. The operations were performed by the director, Olshausen, or his assistants, and resulted in saving all of the children, and all but one of the mothers. Adequate knowledge of this operation is considered so necessary that Olshausen makes it a point to so arrange that each assistant, before leaving the hospital, will have performed the operation at least once. It is regarded of great importance to students, and whenever practicable, the operation is done in the amphitheater, so that each man may have occasion to learn thoroughly the method of operating, and be prepared himself, when he has graduated and is in practice, to undertake an abdominal section in a parturient woman as he would any other emergency operation.

The technique is simple. The operation is preferably performed when the os is dilated to the size of a silver dollar and the bag of waters is yet unruptured. At the start a hypodermic injection of ergotine is given in the thigh. The woman's abdomen is scrubbed with soap and water for a few minutes and wiped dry with a sterile towel. It is then washed off with alcohol and finally, with a bi-chloride solution. The operator's hands are similarly prepared. An incision is made in the median line sufficient in length to allow the uterus to be brought out. The abdominal wall is thin in the parturient woman and there is no danger of wounding the intestines, which are on either side of the uterus, well away from the site of the incision, and with ordinary care the omentum will not be cut. There is no appreciable hemorrhage from the abdominal incision; no bleeding vessels have to be caught up with forceps. The incision is made quickly and the uterus is gently drawn forwards through the opening, while volsellum forceps, protected with gauze, hold together the edges of the abdominal wound behind it and temporarily close the opening, so that the uterus cannot fall back into the abdominal cavity or the intestines escape. This is the work of perhaps two minutes. The assistant now steadies the uterus by holding it just where it emerges from the abdominal cavity, with the thumb and fore-finger of each hand laid flat on the abdomen. There is no rubber ligature, no compression; simply a steadying so that the uterus shall not slip back unexpectedly. The determination of the placental site is now to be made by the condition of the veins, and the relationship of the round ligaments. If the ligaments run parallel, the placenta is on the posterior wall; if they diverge sharply from their fundal attachment, the placenta is situated on the anterior wall. Of course the veins will be larger on that portion of the uterus which corresponds to the site of the placenta. If, for instance, the placenta is attached to the right upper portion of the uterus and on the posterior wall, the round ligaments will run parallel, but the veins on the right side will be markedly enlarged in comparison with those of the other side. It is preferable to avoid the placental site in making the uterine incision, but it is not a matter of such very great importance. With the uterus steadied by the assistant's hands, the operator cuts carefully but quickly through the uterine wall, usually in the median line, by successive incisions until the opening made is large enough to permit the introduction of his hand, the rupture of the amniotic sac and extraction of the child. The cord is cut between two ligatures or forceps and the child handed over to another assistant. In the meantime the uterus contracts, as a rule, at once, and the assistant holding it prevents it from falling into the abdominal cavity. This contraction of the uterus usually loosens the placenta so that it is easily removed through the uterine wound, but if it is adherent, it can be gently separated. The operator now looks for hemorrhage. As a rule it has been unnecessary to apply forceps while the incision was being made and only exceptionally is it necessary now. If retraction is insufficient, the uterus can be manipulated, but in most cases moderate compression applied once or twice by seizing the uterus in the palm of one hand is enough. The closure of the uterine incision now follows. Olshausen uses strong catgut for this purpose, although in the last edition of his text book, silk is recommended. The sutures are interrupted, include the musculature alone, are placed about half an inch apart, and usually number ten to fourteen. It is not of vital importance if the mucous membrane or indeed, the peritoneum, is included. When these sutures are tied, the uterus is often again compressed gently to expel clots, and the operator again looks for hemorrhage, which, if found, is controlled by additional superficial sutures in the musculature. The uterus will now have materially retracted and presents only a narrow peritoneal incision, which is closed by a continuous Lembert catgut suture—not too thick—which turns in the edges. Once more, if necessary, clots are expelled by pressure and in rare instances a few additional sutures are placed, to control the oozing. Finally, the uterus is returned to the abdominal cavity into which not a drop of blood or amniotic fluid will have entered. The abdominal wound is closed as in other abdominal sections. Olshausen sews up with continuous catgut sutures, first the peritoneum, then the musculature, then the fascia, and finally the skin, each layer by itself. In Caesarian section, the abdominal wall

is so thin that usually three rows of sutures suffice.

Dr. Lewis spoke of modifications of this technique in cases of hemorrhage, rupture, or traumatism, and instanced the indications for the operation which, in his opinion, should include today nearly every case where the mother's life is jeopardized, or when the delivery of a living child is improbable.

Diagnosis and Treatment of Acute Pleurisy.

Edson B. Fowler. Etiological Diagnosis: Primary simple pleurisy, while induced by cold and exposure, is commonly considered to be due to an infection and is much more rare than the secondary type which arises from the extension of infection from neighboring tissues, more frequently by tuberculosis, pneumonia, pulmonary gangrene, hemorrhagic infarction, pulmonary embolic abscess and rarely, growths invading the pleura. To speak more broadly, since many of the foregoing affections of the lungs may develop in diverse diseases when of a severe type, it follows that pleurisy may be a complication of almost any disease. Of the secondary types, by far the most frequent is that arising from the tuberculous lung.

Pleurisy from sources outside of the lung is not uncommon, namely; from affections of the ribs from trauma or otherwise, vertebral caries, infection of the mediastinal glands, perforation of malignant growth of the oesophagus, pericarditis, rarely malignant growths of the kidney, peritonitis arising from abscess of the liver or stomach from perforating ulcer or otherwise, and acute suppurative pancreatitis with involvement of the lesser peritoneal cavity. Rarely also, pleurisy may arise from acute articular rheumatism and not infrequently it may be a late and even terminal complication of chronic Bright's disease, cirrhosis of the liver, cancer, heart disease, etc. The bacteriology is chiefly the bacillus tuberculosis, less frequently pneumococcus, streptococcus, influenza bacillus, etc., etc.

Course of the Disease: The onset of pleurisy may be sudden or gradual and sometimes there is a prodrome. Early there may be a chilliness or a chill, moderate or even severe. Fever is present but as a rule not very high. Sputum in varying quantities is common and rarely there may be a little red blood mixed with it the first day or so. Pain, except in very young or old people is more or less severe. It is variously described as sharp, cutting or shooting. At first it may not be great but it gradually increases in intensity. Rarely, pain may be referred to the side opposite to the seat of the pleurisy. Cough is generally present and aggravates the pain as does laughing, crying, gaping, deep breathing, exertion, change of position or pressure over the affected area. The region most frequently painful is below the fourth rib and in the neighborhood of the axillary region although very frequently pain is near the nipple or the apex of the heart. More rarely it will be complained of in the epigastric, hypochondriac and upper lumbar regions or shooting into the shoulder. Respiration is accelerated and a varying degree of shortness of breath soon appears and may later become severe dyspnoea. These patients feel dull, may be pale, have little or no appetite. Some may continue at their occupation until, in two or three weeks, weakness, dyspnoea and general malaise drive them to the physician who usually finds a large effusion. In favorable cases, the symptoms may disappear in a few weeks and the patient be symptomatically well. More severe ones may develop great dyspnoea and cyanosis with possible fatal termination. Others may become chronic and show thickening of the pleura and chest deformity, with or without pulmonary tuberculosis.

While the diagnosis is obvious in many cases and not infrequently correctly made by the patient there are many of an atypical type which are difficult. It is well to keep before us (1) the etiological factors as enumerated (2) the typical symptoms and (3) the clinical varieties (a) acute fibrinous (pleuritis sicca or plastic pleurisy) and (b) sero-fibrinous pleurisy (pleurisy with effusion.)

Examination of Patient. Inspection: In dry pleurisy, patient frequently lies upon the affected part or presses the hand, elbow, or pillow to the side at the same time bending the trunk toward the pleurisy to restrict as much as possible the pain. Respiration appears frequent, not dyspnoeic but shallow, often limited on the involved side or in the diaphragm. In the latter case, the respiratory excursion is largely thoracic and the diaphragm is more or less fixed; and with an effort to breathe diaphragmatically often there is, as full inspiration is approached, a wavy, shaking, halting action of the rectus muscle on the affected side (R. V. Stenitzer.) Also we have observed a little below the ribs a similar phenomenon in the other abdominal muscles of the affected side. Attacks simulating angina pectoris have been seen. (Andral.)

With a Moderate Effusion, there will probably be nothing striking in the attitude of the patient. The affected side often appears larger and is without noticeable expansion aside from a little in the upper thorax. In thin chests the interspaces may be partly obliterated, rarely entirely, except in children in whom there may be bulging. A visible apex beat may be displaced to right or left and, not infrequently is hidden under the sternum in left sided effusions. Occasionally, with each inspiration, is the shoulder of the side in question raised a little higher than its fellow. I am not prepared to deny or affirm that the rib interspaces are "invariably" narrowed on the effused side as stated by Przwalski who was able to demonstrate it most easily in children and at an early stage of the effusion. To outline the effusion to the eye, one will find of service the phonation test of Weisz in lean persons where there are no adhesions or reflex muscular rigidity. Upon pronouncing the explosives **b, p, k,** etc., the costal interspaces over all parts of the lungs will perceptibly bulge except where there is effusion the limits of which are thus made visible.

Palpation may reveal the friction rub though it is usually not felt with every respiratory

movement and but rarely with every inspiration and expiration. It is best recognized by the hand placed flat upon the chest with the fingers parallel to the ribs and resting in the interspaces. Usually very light pressure is most successful. Change of position of the patient or his elevating or lowering his shoulder in connection with respiration or a deeper than average breath may assist in detection of the rub which is not developed usually till the middle or very end of the inspiratory or expiratory act, that is, it lags very perceptibly. The friction vibration is greatest when the pleurisy is below the fourth rib and most likely to be found therefore when the inflammation lies below the level of the nipple. Pressure usually increases the rub and may elicit pain (a) at the place of pressure or (b) radiating below ribs in upper abdomen or (c) toward the nipple or (d) under the shoulder or (e) over the right or left phrenic in the neck or (f) at the attachment of the diaphragm or (g) through the liver when the right side, especially the diaphragm, is involved or (h) by the passage of ingesta through the oesophagus at the diaphragm or (i) just below the ribs.

In effusion there is more or less increased resistance and lessened elasticity of the side involved in proportion to the quantity of effusion. Above the effusion, if not very large the tactile fremitus will be exaggerated. When large, it will be almost entirely wanting; the heart apex if not under the sternum is felt displaced.

Percussion gives no abnormal notes until the effusion appears which will give an area of dullness corresponding to the confines of the effusion. The contour of the upper line of the effusion is the same for equal quantities of fluid. In small effusions the dullness is at the extreme base of the chest behind, the upper border is slightly convex and starting near the spine extends to the bottom of the pleural cavity near the mid axillary line. In looking for small effusions, we always compare the two sides, remembering that the left side is normally a little lower than the right. A medium effusion is horizontal behind, rises in a convex curve in axilla and falls toward the front of chest. In a large effusion its upper line corresponds roughly to the location of the second rib. Percussion shows respiratory excursions absent in medium or large effusions. Gerhardt thinks he can discover a small effusion earlier by putting the patient in the knee-chest position with moderate inclination of the body toward the affected side in which position the fluid gravitates toward the axillary region. We have not been able to verify Gerhardt's finding. A changing line of dullness can rarely be demonstrated except when a considerable time is given the effusion to adjust itself to a new position of the patient. When there are adhesions, sacculated effusion or thickened pleura, the aspirating needle is a great help. The heart may be displaced anywhere to the right as far as the right nipple line or to the left as far as the left axillary region, depending upon the quantity of the effusion and which side is involved. The apex does not move horizontally but describes to some extent the arc of a circle whose center is the less movable base of the heart. The liver will be displaced downwards somewhat or Traube's space diminished respectively as there is a right or left sided effusion. Hyper-resonance or tympany is common just above the effusion. With the patient leaning forward and the muscles of the back somewhat tense, if the examiner places the left hand below the nipple, flat and rather firmly and percusses forcibly the ribs on the same side at the angle or a little posterior, there may be an increased vibration of the rib transmitted to the left hand if there is an effusion.

Auscultation of dry pleurisy in the beginning generally gives a friction rub over the seat of trouble not always synchronous with the respiratory movement but usually however in the last third of inspiration or expiration or, what is common, heard at the end of the respiratory act. The rub may be to and fro with each respiration but frequently is heard every second, third or fourth respiration either to and fro or, what in our experience occurs very often, only an audible rub one way and that may be either inspiratory or expiratory. The same manipulation of the patient for auscultation as for palpation is not infrequently valuable in hearing the rub. Over a medium effusion, respiratory tones are faint, distant or absent. Vocal fremitus is diminished or absent over the effusion except where there are adhesions, or an encapsulated effusion, or in children. Above the line of dullness, vocal fremitus is usually increased, bronchial breathing or aegophony, may be heard or a fine moist crepitation in the lower portion of the lung may be present on the affected side. The nature of the pleuritic effusion may be determined by its examination, grossly and microscopically. A blood tinged effusion speaks for tuberculosis or malignant growth involving the pleura. Microscopically the cystodiagnosis as used by Widal, Rivaut and Nawnyn and tested by Dieulafoy and others would appear fairly trustworthy. It is based on the principle that a liquid bathing the pleura tends to detach endothelial cells but if the pleura is covered with a false membrane, these cells will not reach the exudate. Also as the inflammation is severe, so will polynuclear leucocytes replace the lymphocytes in an exudate e. g., an effusion resulting from ineffective heart action contains endothelial cells and lymphocytes. Where acute inflammation exists, its tubercular or non-tubercular character is shown by the contents of the exudate. (1) Tubercular when lymphocytes and red blood cells are found. (2) Non-tubercular when chiefly made up of polynuclear leucocytes and some endothelial cells. As a corollary to the above, secondary forms of tuberculous pleurisy may contain polynuclear leucocytes derived from the focus in the lung causing the pleurisy. For examination with microscope, centrifuge and stain residue with thionine, eosine-hematine and Ehrlich's triacid stains. The results obtained in this way are confirmed by histological examination and the injection of exudate in guinea pigs.

Differential Diagnosis. Dry pleurisy without cardinal symptoms and with severe initial chill (e. g. in pneumococcus infection) may simulate

closely beginning pneumonia. However the pneumonia has one or more of the following signs or symptoms (1) rusty, tenaceous sputum, (2) dull, heavy ache through the chest, most often under the sternum (3) fine, dry, crepitation in the beginning pneumonic area. With moderate effusion atypical signs occasionally confuse. There may be no demonstrable restriction of chest expansion, very slight or no tympany above or outside the line of dullness; in children tactile fremitus is often marked over the effusion and tubular breathing may be present. In such cases and also in massive pneumonia in which the bronchi are plugged with fibrin, the diagnosis may be impossible without the aid of the aspirating needle.

Little trouble will be experienced with thickened pleura. A history of previous pleurisies, relapses, delayed resolution, etc., will prepare one for the contracted chest, the relative dullness, restricted lung excursion and weak, obscure respiratory tones on the involved side.

Confusion of a left pleural with a large pericardial effusion has occurred. It can be usually avoided if we locate the heart apex and make sure that it is not displaced to the right.

Exclusion of an hydrothorax is made by its being associated with general dropsy, renal or cardiac, and the absence of pain, friction rub or fever. Besides, the fluid is clear, free from flocculi and contains a very little or no albumen. It is a non-inflammatory transudate.

Rarely there may be intercostal neuralgia associated with pleurisy. Dry pleurisy with no friction rub may be taken for intercostal neuralgia. There is no fever, however, in neuralgia. Pain on palpation is usually confined to the nerve trunks. By drawing the finger tip lightly along the lower costal border or on the ribs, sharp pains will be produced as nerves are compressed (1) near the vertebral column, (2) somewhere in the axillary region, (3) near the sternum, i. e., Valliex's points. Not infrequently is the pain asynchronous with respiration and it may be paroxysmal.

Differential of haemathorax can be made by a history of trauma, aneurism, infarct, phthisical cavity involving the pleura, scurvy or purpura and symptoms of sudden, severe hemorrhage and a rapid development of percussion flatness with no friction rub and no fever. Aspiration needle will rarely be needed.

Chylothorax, a very rare condition, can be excluded by the aspirating needle.

A recognition of new growths of the pleura before a pleurisy exists is rare. The tumor is almost always secondary to tumor of the lungs, of structures in the mediastinum or of the kidney, liver, mammary gland, sternum, ribs, etc., etc. A knowledge of the primary growth will usually make evident the nature of the pleural involvement. These growths and also hydatids, give extensive dullness with an absence of tactile fremitus and no breath sounds and so closely simulate effusion that the exploratory needle or X-Ray will frequently be necessary.

Treatment I.—Prophylaxis. In so far as possible avoid the etiological factors especially cold and wet. 2. With patient in bed, enjoin absolute quiet. 3. Control the pain by strapping with adhesive plaster well beyond the affected side, taking care to have the patient expel all the air possible before applying the strips of adhesive, or after forced expiration, encircle the chest with a bandage extending from the lower border of the lungs well above the seat of pleurisy. Or, we may use leeches, guiacol, Paquelin cautery, mustard plasters, poultices, various linaments, heat or cold, tincture of iodine, etc., etc. Having obtained very satisfactory results with strapping or bandaging, we have had little clinical experience with the latter methods. Internally for pain, morphine hypodermatically, a Dover's powder or any one of many analgesics may be used. Calomel followed by a saline is routine treatment. Salicyliates are of value in the rheumatic form of pleurisy. 4. The diet should be light and nutritious but not necessarily liquid. Restriction of fluids as well as mild, general depletion of body fluid before effusion has occurred would seem rational. 5. Rarely will the height of the fever indicate sponging. 6. When an effusion has developed and does not begin to diminish soon after the fever has subsided, or when a week after inception of the effusion, it does not diminish, counter irritation is usually considered. If the patient is strong, a more rigid limitation of liquids has advocates. The food should be nutritious but contain a relatively small quantity of fluid. Restriction of liquids and the use of cathartics is favored by some and much opposed by others. Diuretics have long been used. Digitalis may be of value when for any reason there is waning heart compensation. Hot or vapor baths or diaphoretics are likely to annoy and depress the patient besides making very little impression upon the effusion.

Aspiration should be employed, (1) When there is dyspnoea with cyanosis and an embarassed heart. (2) When the effusion has developed rapidly and there is danger of sudden onset of the immediately foregoing symptoms. (3) When absorption of the effusion is delayed more than ten days or two weeks. (4) When reaccumulation of effusion has occurred. The chief dangers incident to aspiration to be guarded against by careful technique are in order of frequency of occurrence (1) pain and cough with disturbed circulation and possible syncope (2) pneumothorax (3) emphysema of the chest wall (4) pulmonary oedema (5) additional infection of the case with careless technique.

In this connection may be mentioned the treatment of serofibrinous pleurisy by aspiration and injection of a somewhat less volume of air. (Vaquez et Laubry, Bulletins et memoires de la Societe medicale, April 23d, 1903) into the pleural space. The advantage claimed for this procedure are (1) A more complete evacuation of the effusion is possible without producing pain, cough, dizziness, fainting, albuminous expectoration and a possible pulmonary oedema. (2) It seems to favor the non-recurrence of effusion possible by maintaining more nearly the pressure equilibrium within the pleural cavity. The compression of the lung is maintained and expansion and consequent parietal movements of the lungs are held in abeyance pending the general absorption of the air. Nitrogen is prob-

ably better for this purpose than air as it is less rapidly absorbed by the tissues. This treatment needs to be further tested before its proper place in the management of pleurisy will be known.

The after treatment of all pleurisies known or suspected to be tubercular is important. The diet, hygienic conditions, habits and not infrequently the occupation must be prescribed. A change of climate will often prevent the development later of more serious tuberculosis. High altitudes may aid in expanding the contracted lung. Much may be accomplished by systematic, deep inspiration followed by slow expiration. Daily blowing up a football bladder or the use of a blowing machine, swinging of light Indian clubs, light dumb bell exercises, etc., will go far towards restoring the crippled lung to its normal freedom of movement.

Military Tract Medical Association.

Regular meetings are held annually in October at some city in the District which embraces that part of the State lying west of the Illinois River and known as the Military Tract. Membership 150.

Officers.

President ..... H. L. Hopper, Galesburg
First Vice Pres. ..... W. S. Holliday, Monmouth
Second Vice Pres. ..... J. A. Kirkland, Cambridge
Secretary and Treasurer...C. B. Horrell, Galesburg

At the annual meeting held Oct. 15 and 16 at Peoria, S. C. Stremmel of Macomb read a paper on **Hospitals in the Smaller Cities.**

Not long since hospitals were seldom seen outside of the larger cities, but within the last decade, they have sprung up, like magic, all over the United States, and it seems reasonable to predict that within the next few years there will be few cities with a population of 5,000 or above that will not have a hospital. As the medical profession, in the smaller cities advances to the point where it appreciates hospital facilities and advantages and becomes competent to manage hospital cases, just so soon, as a rule, the hospital will be built, provided there is some one in the community, who is capable of getting the subject before the public in such away that it can clearly see the necessity of one. The chief difficulty experienced by almost every community desiring to build a hospital, is to raise the necessary money. It takes from 15 to 20 thousand dollars to build and equip a 20 bed hospital with modern conveniences essential to do good work, if careful economy is used. The money can often be secured by donations from charitably inclined people with means if they can be made to understand the work done by a well conducted institution of this kind. When it is impossible to get the money in this way, it may be gotten by subscription. This, of course, requires usually a great deal of time, perseverance and hard work and, in many instances has resulted in failure. Occasionally hospitals are built, in a small city, by one or more doctors, as a business enterprise, but men who have sufficient means to build a hospital are seldom so short sighted as to invest their money this way without a careful investigation as to the expenses of maintaining a hospital, consequently they do not invest. When a hospital is once built, the proposition before the community is how to make it a success. The success of these hospitals depends upon the following important points: 1st. The kind of work done. 2d. The co-operation of the better element of the profession and 3d, proper management.

Kind of work done: Nothing succeeds like success. Whenever a patient goes to a hospital and returns to his home with health restored, it is a standing advertisement for the institution for years to come, while if he is no better or is worse, it is a serious blow. Yet the people all over the country are rapidly becoming educated to hospital work and will soon forgive our short comings here as readily as they do in their homes. It frequently happens that physicians in their anxiety to get cases in and to have the hospital full, run in all kinds of incurable cases and cases that are not legitimately hospital cases. Such work is bound to reflect discredit on the institution. Of course it is necessary to take many cases to the hospital for care and treatment, that are incurable, but in such cases the family should clearly understand the probabilities of the result of treatment and not be given unreasonable promises, simply to get the cases in. The strong fever to the success of a country hospital is good surgery, consequently the man or men who do the surgery should be thoroughly qualified for the work. Even if a great many cases are well treated, a few unfortunate ones improperly treated, will cripple the institution. It takes a better surgeon to do surgery for any length of time in a small city than it does in the large hospitals of our large cities, because the entire community upon which he is depending for his cases, knows all about his work, while in the cities very few ever know anything about it. A serious trouble in many places, is that as soon as the hospital is built, everybody wants to do surgery, as a result the work is so divided that no one ever becomes proficient, consequently there are hospitals today which have no surgeon worthy the name, and communities that get poor surgical service. When the institution is opened this point should be considered and one man appointed to do all the surgery, except minor cases, and he should have his regular and trained assistants in all heavy operations. I am aware that this is often difficult to do, but it is essential to good service. It is a well-known fact that quite generally throughout the country a majority of the patients will let any doctor do any kind of an operation on them without inquiry into his ability for that kind of work, consequently they are often operated on by the totally inexperienced. This does not imply that anyone should be barred from satisfying his ambition to be a surgeon but it does imply that no one should do surgery without first thoroughly fitting himself for it. With the modern post-graduate facilities, there is no excuse for amateur work and no hospital should permit anyone to operate who has not had the proper training beforehand. The hos-

pital should have its regular anaesthetiser, one who takes interest in it, makes it a study and is competent to administer the anaesthetic skillfully. Many patients have died from ether and chloroform anaesthesia, consequently this is a most important position and should be well understood. A good microscope and a good man to handle it is a necessary part of the armamentarium of every hospital. Urine, blood and pathological examinations should be made of every case as a routine practice. If this is neglected, serious and often fatal mistakes will be made.

Co-operation of physicians;—an important factor to the success of the hospital is the co-operation and support of all or a majority of the physicians of the community. It is gratifying, indeed, to see physicians, who, in days gone by, were barely on speaking terms, unite and work shoulder to shoulder to maintain the hospitals and strive to improve along the lines of modern hospital treatment. These usually comprise the better element of physicians. Then there are those in almost every community who do all they can against the hospital. They are the men never seen at a medical society and slink into professional isolation which leads them into the old rut of mossbackism. Fortunately, their influence is not much but it is some. When they hold a case that needs operation they send to a distance for a surgeon and have him operate in the patient's home, explaining to the patient that it is not necessary to go to a hospital at all. People who do not know the difference between home and hospital operating are quite ready to stay at home so that all the folks can be right there in the way. Quite a number of patients are kept away from the hospital in this way and when the patient insists on going to the hospital in spite of advice to the contrary, the doctor precedes him with a request for a good portion of the fee for his influence in bringing him in. It is the duty of every surgeon to refuse to operate on any case under such circumstances, unless it is an emergency case and cannot be removed to the hospital safely. If he does not he is guilty of conduct unbecoming to his profession.

The management: The management of the country hospital should be either in the hands of one of the nursing organizations, such as the Deaconesses or Catholic Sisters, a single individual as trustee, or the city. It should never be in the hands of a board of lady managers or a church, because, as a rule, not one of them know a thing about running one or what its needs and best interests are. The various nursing organizations have certainly done a great work in this line and deserve the greatest praise and admiration of the general public, wherever they are working. The great trouble is there are not one-half enough of them. They are refusing daily to take charge of institutions after institutions, which are offered to them with all the indebtedness paid and a clear title to all the property and appliances, but they can not take them because they have not women enough who are competent to take charge of them. When the management is totally in the hands of one man, it is alright, provided he is liberal minded enough to see that every doctor connected with the hospital gets fair and impartial treatment and guards jealously the service of the institution to patients and understands thoroughly all the detail work. Where the hospital is in the hands of a board of trustees of citizens or doctors, the general management should be left in the hands of the superintendent. A trouble often encountered, where the hospital is in charge of the city, is that after each election, there is a change in the staff. The staff should be permanent and each member should hold his position as long as he is competent to fill it, regardless of political or wire pulling influence. The management being settled, a most important point is to secure an able superintendent. Upon her rests a great portion of the responsibility for the success of the institution. Her position is a most difficult one to fill and she deserves more credit and compensation than she ever gets, if she does her work well. In the large hospitals of the cities everything is run on a strictly business principle. Most all of the patients are strangers and know nothing much about hospitals, they are known only by number and if they are put anywhere and treated any way, it doesn't make any difference, the hospitals keep full just the same. While in the smaller cities, it is very different. Most every patient stands in the relation of a personal acquaintance as it were, he is at home among his friends. He knows everything that is going on and when he gets out he tells everybody what kind of treatment he gets, while at the hospital. If the operation is a perfect success in every way and he is restored to health he is satisfied. If he fails to get the many necessary attentions and courtesies, he will often go out and call it a bum place to stay. Besides attending to these matters, the superintendent is expected to do the housekeeping, oversee the kitchen, the laundry, the janitor's work, the maid's, carry on class work of her pupil nurses, instruct and look after their work with patients, take charge of the operating room, and see and keep the books and have her accounts all straight, also do the shopping and innumerable other things. For all these services she usually gets from $40 to $50 a month. A superintendent who is capable of doing all this work and doing it well, earns and should be paid from $75 to $100 a month. Many who have shown themselves competent are getting such salaries and it has been shown that they save more than half their salary for the hospital.

Last but not least, I wish to say a word with regard to expenses. It is these that make it difficult to keep the hospital accounts on the right side of the ledger. It costs $600 a month the year round to run a 20 bed hospital if economy is practiced. This includes salaries, provisions of all kind, gas, water, fuel, medicine, surgical dressings, repairs, etc., everything complete. Some months the expenses will be much less but with the most careful economy at the end of the year, it will figure up, nearly to the average. If the hospital is full all the time it will take from six to nine hundred dollars a month. It has been said that the hospi-

tal is like a steamboat, if it is kept full all the the time, it makes money but if it is empty loses rapidly. The ward beds should be $10 a week and the private rooms from $12 to $15 or even $20, a special nurse should be $15 a week extra. No one should ever be turned away on account of poverty. It is unfortunate and a most commendable act on the part of anyone or the community to endow a free bed, but where that is not possible, the hospital must take care of the poor anyway. Usually the bills for the worthy poor are willingly O. K.'d by the county supervisors. When good work is being done and everybody fairly treated, the public soon appreciates it and give substantial aid to the work.

McLean County Medical Society.

Regular meetings are held in Bloomington the first Thursday of each month. Membership 95.

Officers.

President ..... F. C. Vandervoort, Bloomington
Secretary .... A. F. Kaeser, Bloomington

The Society convened at the City Hall in Bloomington, December 3, with President Vandervort in the chair. The minutes of the last meeting were read and approved.

Dr. Mammen reported for the executive committee that they had secured a place of meeting for the State Medical Society.

The board of censors reported favorably on the application of Dr. E. L. Brown, of Bloomington, and he was elected to membership.

Judge R. A. Russell was then introduced by the president as the essayist of the evening and he gave a paper which read in part as follows:

The Law-suit is the guarantee of human rights. It is an institution as old as man himself. It is absolutely essential—whether we like it or not. The humble and the great—the rich and the poor—all have need of it. As long as evil exists and society is constituted as it now is, so long will the law suit remain. When a man comes to the point where he no longer has fear of the law suit he becomes a dangerous individual.

The law suit is a legal battle. Lawyers and court must forget their sympathies and friends and have thought only for duty. In this complicated society it is impossible for any one man to know all his rights and duties under the law. Two classes of cases will appear before the court: 1. Law; 2. Facts or evidence.

The method of procedure is prescribed by law i. e., the court; while the jury determines the evidence. The ordinary witness must tell what he knows, not what he thinks or believes.

It happens sometimes that a case is not complete if we use only direct evidence. So we get at related facts and from this arises circumstantial evidence. Now this evidence is often of such a nature that it is difficult for ordinary jurymen to draw a conclusion from it and in these the court allows what is known as "expert testimony;" and the witness who testifies is an "expert." The expert is most often needed where questions of science, the professions or trade are involved. Suppose we have a question involving the sanity of a man. The ordinary individual is not able to judge of this while the physician is supposed to have special knowledge along this line. He cannot pass on the evidence, he is expected to educate the jury. Hence the question is put to him in a "hypothetical manner." He is not to pass judgment on the individual on trial, he is merely asked to draw a conclusion, granted that such and such conditions prevail. The court determines his competency to testify. Of late, two classes of experts have arisen.

1. The extreme expert—who lives by his profession.

2. The ordinary physician.

It is the first class who have so often brought expert testimony into disrepute, for making their living by this, they have often been too anxious to testify without much regard to facts.

The second class, those who have nothing further at heart than to enlighten the jury correctly receive all honor from the court.

Such are the honest intelligent physicians.

A vote of thanks was extended to Judge Russell for his able and instructive paper.

Clark County Medical Society.

Regular meetings are held at Marshall the second Thursday at 2 p. m. Membership 12.

Officers.

President ..... Jos. Hall, Westfield
Vice President ..... R. H. Bradley, Marshall
Secretary ..... L. J. Weir, Marshall

Clark County Medical Society met in Marshall, Ill., in Dr. Weir's office at 2 P. M., Oct. 8, 1903. The president, Dr. Hall being absent, vice-president Dr. Bradley called Society to order.

Members present: Drs. Bradley, Duncan, Wilkins, Ryerson, Rowland, Prewett, Wilhoit, L. J. Weir and John Weir.

Minutes of last meeting were read and approved.

Committee on Constitution and By-Laws report was then read, discussed and adopted, being that proposed by the A. M. A. Journal, Aug. 9, 1903, slightly modified to fit local conditions.

Dr. Ryerson then read an excellent paper on **Treatment of Gonorrhea in the Male by the Irrigation Method;** describing the anatomy of the urethra, its pockets (glands) and irregularities, showing the difficulty of cleansing, sterilizing it, then reciting the method of treatment: Picric Acid ½ to 1 gal. of sol. 1 to 200 to 1-500 owing to severity of inflammation, using a gallon of hot water first, instead of using catheter employs glass tube attached to fountain syringe. Subject was discussed by every member present until no more time was available.

The board of censors reported favorably on the applications for membership of each of the physicians who had manifested enough interest to attend either of the two meetings held i. e. Bradley, Duncan, Pearce, L. J. Wier, Hall,

Rowland, J. Weir, Haslet, Rynerson, Wilhoit, Wilkins and Prewett.

On motion and second the Secretary was instructed to have a number of copies of the constitution and by-laws printed and mail a copy with invitation to become a member, to each doctor in the county, legally qualified to practice medicine, and everyone answering favorably (stating his willingness to subscribe to same) shall after approval of board of censors be listed as a charter member, list to be forwarded and charter applied for from State Society in about a month.

Society adjourned all feeling that violators of the moral law in Clark County would be managed better as a result of this meeting.

Warren County Medical Society.

Regular meetings are held in Monmouth the first Tuesday of May and October. Membership 15.

Officers.

President ..... A. G. Patton, Monmouth
Vice President ..... J. M. McClanahan, Kirkwood
Second Vice President ..... H. A. Foster, Gerlaw
Secretary and Treasurer.....E. J. Blair, Monmouth

The Warren County Medical Society met in the Court House, Monmouth, Ill., Oct. 6th, was called to order by the President, W. S. Holliday, there was a fair representation of the doctors of the County present. The Committee which had been appointed on Constitution and By-Laws, was given full power to act on same as recommended by the A. M. A.

Drs. Wallace, Skinner and McClanahan were appointed the Board of Censors. David A. White, Little, York, Ill., and J. J. Allen, Kirkwood, Ill., were received as members of the Society.

J. F. Percy, Galesburg, Ill., represented the State Society in a very interesting and forceful way.

F. E. Wallace read a timely paper on **Medical Ethics.** H. S. Zimmerman, Cameron, Ill., read a paper entitled **Osteopathy—What is it?** This paper was characterized for its originality and fairness.

J. M. McClanahan, Kirkwood, Ill., reported a very interesting case of **Paraplegia** also a similar case by J. W. Standley, Alexis, a very helpful discussion followed, in which all of the doctors present participated.

A communication was presented from Charles A. L. Reed, Chairman of the Committee on Medical Legislation of the A. M. A. to the effect that E. J. Blair, Monmouth, Ill., had been appointed a member of said committee to represent Warren County, the doctors of the County will confer a favor by reporting any matter which might be of interest to the Legislative Committee to him.

The following officers were elected for the ensuing year: A. G. Patton, Monmouth, president; J. M. McClanahan, Kirkwood, and H. A. Foster, Gerlaw, vice-presidents, and E. J. Blair, Monmouth, secretary and treasurer.

After a very enjoyable banquet at the Presbyterian church the Society adjourned.

Vermilion County Medical Society.

Regular meetings are held the second Monday of each month in the city hall, Danville, at 8.30 p. m. Membership 40.

Officers.

President ..... Jos. Fairhall, Danville
Vice President ..... F. N. Cloyd, Westville
Sec'y and Treas. ..... E. E. Clark, Danville
Board of Censors: H. F. Becker, E. A. Johnston, W. A. Cochran.
Committee on Violations of the Medical Practice Act: E. E. Clark, S. L. Landauer, S. C. Glidden.

The December meeting was held at the City Hall, December 14th. The meting was called to order by the President, Joseph Fairhall.

The Secretary's report was read by E. A. Johnston, E. E. Clark being absent.

R. A. Brown, Humerick, Ill., applied for a membership.

President's inaugural address by Joseph Fairhall. A very creditable address, in which he reviewed the history of the Society, commended its faithful members, recommended opposing drug houses sampling their goods from house to house, a revision of the Society's by-laws, greater care in the work of the Board of Censors, and that the Society make early arrangements for the entertainment of the Aesculapian Society, which is to meet with us in May.

The paper of the evning was on **Epilepsy,** by M. S. Fletcher. An able paper treated of Epilepsy as being due to an explosion of the nerve centers and especially recommended governing and training a child as a prophylaxis.

The discussion was led by J. M. Guy and participated in by all the members present.

Cases reported: O. W. Michael, **Scurvy,** with its attending sore mouth and very enlarged spleen and Purpura hemorrhage; patient died in two weeks. Patient a miner, and supposedly large amounts of salt meat the cause. E. M. Smith. **Septicaemia, following child birth,** woman who was attended by a licensed midwife, but no aseptics were used.

Society adjourned. E. A. Johnston,
Secretary, pro tem.

Logan County Medical Society.

Regular meetings are held the fourth Thursday of January, April, July and October. Membership 13.

Officers.

President ..... J. L. Lowrie, Lincoln
First Vice Pres. ..... L. F. Curtis, Elkhart
Second Vice Pres. ..... Maskel Lee, Atlanta
Secretary ..... H. S. Oyler, Lincoln
Treasurer ..... W. H. Kirby, Chestnut

The Society was organized on the 29th of October, and officers elected. Committees were appointed to change the constitution of the American Medical Association, recommended to suit conditions of Logan county and to select time and place of meeting.

The second meeting was held December 3d. at which time the constitution was adopted. The Society will meet quarterly in Lincoln, the annual meeting being the 4th Thursday in April. We have a membership of 13 at present.

Sangamon County Medical Society.

Regular meetings are held in Springfield the second Monday of each month at 8 p. m.
Membership 73.

Officers.

President ..... B. B. Griffith, Springfield
Vice President ..... S. E. Munson, Springfield
Secretary-Treasurer ..... C. P. Colby, Springfield
Directors, W. O. Langdon, R. D. Berry, C. R. Spicer

The Sangamon County Medical Society held an exceptionally well attended monthly meeting on Monday, December 14, 1903, at 8:30 p. m., in the supervisor's room at the Court House, with President B. B. Griffith in the chair.

Minutes of last meeting read and approved.

The Board of Directors asked for more time before acting upon the report of retiring Secretary-Treasurer.

Bills of Edw. F. Hartman Co., $2.85; Secretary, $1.00, were read and ordered paid.

The application of H. H. Tuttle was read and referred to the Board.

The business part of the meeting being finished, Hon. James M. Graham, read a very interesting and instructive paper on **Medical Jurisprudence.** A unanimous vote of thanks was extended to Mr. Graham.

Dr. Kreider reported a case of **Appendicitis with Symptoms Simulating Sciatica,** also a case of virulent **Septicaemia** in one of our profession, following a slight cut of the hand.

D. A. L. Brittin reported a case of probable **Ectopic Gestation** of six months duration with uterus much smaller than would naturally be expected from the duration of pregnancy, also with metrorrhagia, paroxysms of excruciating pain, and discharge of pieces of decidual membrane.

Dr. Egan reported an interesting case of **Varicella. Closely Resembling Variola** in an adult.

Dr. Walters a case of **Albuminuria.**

Adjourned.

Charles P. Colby, Official Reporter.

Tri-County Medical Society.

This Society embraces the counties of Iroquois, Ford and Vermilion. Regular meetings are held in the counties in rotation on the first Tuesday of June and Dec. Membership 50.

Officers.

President ..... F. M. Mason, Rossville
Secretary-Treasurer.....Leroy Jones, Hoopeston
Censors: Mary B. Newell, Onarga; T. N. Bone, Loda; D. W. Miller, Gilman.

Our Tri-County Medical Society met December 1st, in Watseka, with doctors from the three counties of Iroquois, Vermilion and Ford. The attendance was light but the meeting one of the best.

Drs. Shaw, of Martinton and Smith, of Watseka, were elected members. Dr. C. B. Johnson, member of Illinois State Board of Health was present and made a good address on **Diagnosis of Smallpox.** Drs. Johnson, of Danville and Leemley, of Watseka read fine papers on **Rheumatism.** A committee was appointed to submit a revised Fee Bill at the next meeting. The society meets again June 7th, at Hoopeston.

Leroy Jones, Official Reporter.

Effingham County Medical Society.

This society was organized in December, and will hold a regular meeting Tuesday, January 12, 1904, at Effingham.

Putnam County Medical Society.

This society was recently organized by Councillor W. O. Ensign, but no report has been sent us. Putnam county is the smallest county in the State and has only six licensed practitioners. If this small county can be organized every county in the State can be.

Changes of Address in Chicago.

Ainsworth, H. H., 304 Warren ave. to Academy of Music.
Besley, F. A., 6027 Prairie ave. to 1070 W. 63d st.
Burcky, W. E., 6641 Halstead st. to 3611 Grand Boul.
Eskridge, B. C., 4166 Halsted st. to 4363 Emerald ave.
Hamisfer, Florence N., 330 La Salle ave. to 281 Oak st.
Olsen, Maria, 34 Washington st. to 520 Dearborn ave.
Rawlings, I. D., 92 State st. to 35th and Lawndale ave.
Sammons, E. H., 3112 So. Park ave. to 3104 Cottage Grove ave.
Stevenson, Alex. F., 398 La Salle st. to 475 Dearborn ave.
Wall, C. D., 339 So. Lincoln st. to 636 W. 14th st.
Warner, A. L., 1315 Venetian Bldg. to 448 N. Clark st.
Wells, J. L., 267 Michigan ave. to New Southern Hotel.
Willard, Wm. G., 544 to 1104 Washington Boul.

Changes to Chicago.

Norris, A. L., from Farmer City to 5002 Washington ave.

From Chicago.

Holsteen, Willis F., 718 Halsted st. to Santa Rosalia, Mexico.

In Illinois.

Barto, F. C., Plainview to ———.
Hagarty, Thos., Wayne City to East St. Louis.
Perdue, Finis, Lyndon to Rock Island.
Shurtz, S. W., Mahomet to Champaign.
Sorby, E. A., Mokena to Oak Park.

From Illinois.

Burwell, Enoch A., Decatur to Hobart, Okla. Ty.
Davis, W. Hope, Springfield to San Antonio, Tex.
Horn, W. L., Arrowsmith to Boulder, Colo.
Rosenberger, P. A., Petersburg to Oklahoma Ty.

The Illinois Medical Journal.

Special Section Containing Official Reports of the Chicago (Cook County) Medical Society and its Branches.
Membership, 1519.

OFFICERS:

R. B. PREBLE, 103 State Street..... ..... President
FRANK X. WALLS, 4307 Ellis Avenue.....Secretary
A. E. HALSTEAD, 2937 Indiana Avenue..... .....Treasurer
W. A. EVANS, 103 State Street. ..... Chairman Medicolegal Committee
WM. HARSHA, 103 State Street.....Chairman Membership Committee

JANUARY, 1903.

A regular meeting was held Nov. 25, with President R. B. Preble in the chair. A paper was read by Dr. Churchill, entitled:

Bone Changes in Rachitis.

Frank Spooner Churchill, Ex-instructor in Pediatrics Rush Medical School (University of Chicago). Rachitis, or rickets is a disease of nutrition, affecting all tissues of the body, and having its most manifest effects in the bones. I do not wish however to be understood as meaning that rachitis is a disease of the bones per se. This is far too prevalent a view of the condition and leads to mistake in diagnosis, or rather to a late diagnosis. For the physician who has this conception of rickets will be looking for the characteristic bone changes, and not till they appear will he detect the true nature of the malady. Rachitis in reality is a species of starvation, beginning insidiously and manifesting its presence by well defined symptoms, as a rule long before any bone changes are evident; for the latter appear comparatively late in the disease. Chief among these symptoms are head sweating, restless sleep, and constipation. This tri-pod of symptoms in an infant should lead at once to an inquiry into the feeding, whether the infant be on the breast, or on a substitute food; which investigation will almost invariably show a faulty diet; that is, a food not containing in proper proportions the elements necessary to proper growth. The natural result is defective nutrition all along the line and in this malnutrition the general osseous system of course suffers along with the rest of the body. It is however, only one phase of the disease, not the disease itself.

To a clear understanding of the pathological conditions found in rachitic bone, a brief statement of the growth of normal bone is necessary. Bone is originally formed by a process termed ossification, beginning in most cases in cartilage, the part formed from the primary center being known as the diaphysis that from the secondary center, as the epiphysis.

This process begins as early as the sixth week in fetal life, is well established at birth, proceeds rapidly during the first years of life, then more slowly, and is finally completed with union of diaphysis and epiphysis in early adult life.

The process e. g., in a long bone is as follows: The cartilaginous cells in the center of the bone become enlarged, separated from each other, and arranged in columns above and below the center. Thus an increased amount of space is left between the cells, and in the intercellular matrix thus left is deposited a calcareous substance. This deposition of calcareous material goes on in both directions, pushing out towards the end of the bone. Co-incidently with this deposition of calcareous matrix, there occurs a thickening of the layer of cells just beneath the periosteum forming a vascular membrane, rich in osteoblasts the agency through which true bone is ultimately formed. This osteoblastic layer next penetrates the intercellular cartilage matrix, absorbs it, and following closely on behind, but with a clearly defined space between the two tissues, itself pushes on toward the end of the shaft.

Section of a normal bone shows the zone of proliferation clearly defined between the end of the shaft, and the still cartilaginous epiphysis. Microscopically is seen the appearance already described of cartilaginous cells, arranged in columns, and close behind the advancing bone. The line between the cartilage and bone is sharp and well defined.

Now in rachitis we see striking departures from the normal in the appearance and structure of bone, both macroscopically, and microscopically. These changes are found widely distributed, but most frequently in the long bones and especially in the epiphysis. The processes already described in the growth of normal bone, cartilage production, and bone production, still go on of course in rachitic bone, but in disturbed relations, cartilage production being excessive, ossification deficient. The result is, speaking generally, a bone deficient in lime-salts, thickened, and flexible; and upon these characteristics depend the deformities seen in rickets. Over cartilageinous production causes thickness: hence the "bosses" seen on the skull, the "rachitic rosary," the broadening of wrists and ankles. Deficient ossification makes the bone softer, and therefore more easily bent when exposed to the pressure of bodily weight and muscular action: hence the deformi-

ties of spinal column and pelvis, the curvature of fore arm, thigh and leg, the green-stick fractures. As the long bones increase in length by ossification at the junction of the epiphysis and diaphysis, we also see shortening of the limbs, due to failure of this process, producing a dwarfed effect.

On section of a rachitic long bone, the principal change is seen at the ends, where the cartilage layer uniting shaft and epiphysis is seen to be much thickened and broadened, with irregular and ill defined edges, unlike the narrow well defined line of the normal bone. This cartilage area is of a bluish color, is softer than normal, and the calcified spots are irregular and scattered. In the shaft, the outer layers of the bone are thickened and soft, the inner layers more thoroughly ossified, the medullary canal more vascular and resembling granulation tissue. Microscopically the cartilage cells in the zone of proliferation are found to be piled up on each other, not arranged in regular columns. The line between cartilage and advancing bone is irregular, and not well defined. Islets of bone are seen in epiphyseal cartilage, and parts which should be completely ossified, are still cartilaginous. There is also a great increase in the number and size of blood vessels. In the shaft are seen more or less thickening and increased vascularity of the periosteum. Instead of hard compact bone are seen irregular spongy masses.

After a varible length of time, from three to eighteen months, the active proliferation in cartilage and periosteum ceases and is gradually replaced by ossification. Condensation and retraction often occur in the spongy masses of bone, and the ultimate result is sometimes an ivory-like structure harder than normal bone, a condition noticed by surgeons operating upon patients who have suffered from rickets in early life.

While the most striking changes in the osseous system are seen in the long bones, the earliest changes are seen at the junction of the ribs and costal cartilages where are found the beads or rachitic "rosary." These beads have been found on still-born children, throughout infancy and early childhood, but rarely after five years of age. They occur more frequently on the lower ribs, and are more marked on the pleural than on the external surface. They vary in size from slight thickening detected only on careful examination up to a mass the size of a cherry.

Another frequent and often marked deformity of the thorax, is a groove extending from the junction of the body of the sternum with the ensiform outward to the posterior axillary border, the so called Harrison-sulcus.

The skull usually presents marked changes occurring sometimes before the beading of the ribs. The edges of the flat bones are unduly soft, the body of the bone yields to pressure like parchment, spots of local thinning are detected, the whole condition being known as "craniotabes." The "bosses" have already been mentioned. They are seen on the frontal and parietal bones, giving the well known square appearance to the head. The persistence of an open anterior fontanel is another sign of almost constant occurrence, and is due of course to deficient ossification.

Less frequent than the changes in long bones, ribs, and skull, are those found in the spinal column. The most common deformity here is a rounding convexity, to be distinguished from the sharp knuckle-like kyphosis of caries of the spine. Lateral curvatures also occur. Vertical section of a vertebra shows a bluish proliferation zone between the disk and the body, also that the body cuts very easily being softer, more vascular, and of looser texture than in health.

Finally must be mentioned changes in the peivic bones which may be extensive enough to be of prime obstetrical importance.

These various changes occur, rarely during fetal life, frequently during the first two years of extra-uterine life, periods at which growth of bone is most active. In the case of fetal rickets, care must be taken to distinguish between this condition and chondrodystrophy fetalis. The macroscopic appearances in the latter are very similar to rachitic changes: there are shortening and curving of the long bones, thickening of the extremities. But microscopically there is a great difference in the two conditions: the enlargement at the ends of the long bones being due in rickets to overgrowth of the epiphyseal cartilage, in chondrodystophy to periosteal thickening; furthermore, the zone of proliferation in the latter is narrower than normal.

As to the exact cause of the bone changes in rachitis, we are still in the dark. While the disease as a whole is due to faulty nutrition, all of the steps by which the pathological condition is produced are by no means determined. In the vast majority, if not in all cases, the diet is at fault; and the most frequent factor in this direction is deficiency of fat, whether the infant be on the breast or on a substitute food: hence the frequency of the condition among the infants of the poor fed either on a poor breast-milk, or on improperly modified cow's milk, and its rarity among the children of the more well-to-do, fed on either a good breast-milk or a properly modified cow's milk.

The development of rachitis is preventable, except among the extremely poor. Given a normal new-born infant with a fairly intelligent mother, the physician can correct the first signs of mal-nutrition, and by intelligent methods of feeding insure proper growth and development. But he must be keenly watchful for the first disturbances of nutrition, and then take vigorous action along dietary lines. Progress from the first slight symptoms to changes in the bones should be to him a matter of shame.

Dr. Charles B. Reed read a paper on **Osteomalacia.**

Osteomalacia.

C. B. Reed: The subject of diseases of the bones in connection with pregnancy includes a very extensive list of conditions which complicate and interrupt the physiological course of gestation and labor. We see for instance, the effects of Rhachitis, Coxitis, osteomalacia,

tuberculosis of the vertebra, exostoses and spondylolisthesis producing a series of characteristic deformities of the bony pelvis, while fragilitas ossium and arthritis together with relaxation or ossification of the pelvic articulations furnish further complications of a more or less serious nature during pregnancy and require in a large degree artificial assistance in the labor.

Osteomalacia may be briefly described as a chronic inflammatory disease of the bones whereby they become soft and yielding, or brittle and in consequence experience many changes in shape from the various forces which act upon them.

In contradistinction to rickets, which it resembles in many respects osteomalacia is found with very few exceptions in adults, and while not entirely limited to females, it may be said that the disease usually occurs in pregnant women of 30 to 35 years of age, who have already been confined at least once, and apparently the more frequent the labors and the closer the succession, the greater is the liability to the disease. It is pre-eminently a disease of the preg. multipara. It is rarely observed in the United States, only a few cases having been reported up to five years ago, but in Europe and particularly in certain localities, the disease may be said to be endemic although in localities of most frequent occurrence, the cases vary with the years and at times disappear altogether. Thus in France and Hungary it is very rare while in parts of Switzerland and Italy it is not at all uncommon.

Clinical History: The invasion is usually signalized by sharp pains which may occur in any part of the body and may affect either bone or muscle. The pains are rheumatoid in character, and exhibit a marked predilection for ribs, cervical vertebra, sternum and the bones and muscles of the pelvic region, especially the symphysis, the pubic rami and the tubera ischii as well as the ileo-psoas, the levator ani and the adductors.

These pains are more marked when motion is attempted and following the resulting inactivity, atrophy and occasionally paresis is found. Contractures are numerous and the Deltoid, the muscles of the lower extremities, or even the uterus may atrophy, the latter even may rupture in consequence, as in the case Ludwig reported.

The process in the muscles is marked by nuclear destruction and fatty degeneration. The paresis and muscular atrophy occasionally precedes the pain.

These phenomena will usually first appear in a multipara, subside after the labor, increase in severity with the next pregnancy while each successive labor becomes more difficult. Pronounced cachexia, anaemia, and lessened alkalinity of the blood mark the advance of the disease, while the urine and the milk excrete an increased amount of phosphates. The teeth may fall out, and the bones may soften until they may be easily cut as after artificial decalcification. It has been stated that the bones attain a rubber like consistency in advanced cases which permits the wings of the illia to be pushed back against the vertebra and the ubera ischii to be compressed until the pelvic outlet is closed. The symphysis forms a beak, the coccyx is bent forward at an acute angle, the illium is crumpled up and in reality the pelvis collapses. The ribs sink down until they rest upon the pelvis and the patient looses from six to eighteen inches in height. The relations of the trochanters to the pelvis are so changed that the hips must be swung through a large arc to place one foot ahead of the other. This pelvic deformity is of course due to the traction and countertraction of the various muscles upon the softened bone, the body weight, and the opposing femora, while a definite importance must be attributed to the gravid uterus which becomes more effective, the later in the pregnancy the attack occurs.

Etiology: A number of factors seem to predispose to this disease, or at least it seems to be associated very frequently with damp dwellings, inferior food, unsanitary surroundings and swampy soils.

Among the diseases which have been found in connection with it are mentioned malaria, eretinism and struma. In regard to the changes which are actually present in the bones, such as the absence of lime salts, porosity and softening, there seems to be no dispute but on the significance of these histological findings there are two opposing views:

1st. That the deficiency of lime in the bones is the result of decalcification of already formed bone.

2d. That it results from the deposit of new osteoid tissue.

Each theory has its vigorous defenders and the basic facts in each case are so harmonious that it makes it far easier to accept the plausible solution given by Fellmer that both are right—that in the advanced stages of the disease there not only occurs a loss of old tissue, but also a definite deposit of osteoid tissue as in rickets between which and osteomalacia Ziegler has demonstrated a pronounced similarity.

This resemblance between rickets and osteomalacia is still further demonstrated by the occurrence in Fellmer's case of senile osteomalacia of almond sized protrusions at the sternal borders of the 7th and 8th ribs.

Morpurgo was also struck by this parallelism between the two diseases and finding osteomalacia quite common in his experimental colony of white rats, he succeeded in isolating a diplococcus which when injected into old rats produced an osteomalacia and in young rats a disease resulting in rickets.

It is very probable therefore as Ziegler shows that the decalcification of old bone with the deposit of osteoid tissue occurs simultaneously in both diseases and the degree of each may vary with the stage of the disease and the age of the patient.

But what causes this change, the actuality of which is so well demonstrated?

The use of water and food poor in calcium salts has been discredited as a factor.

The discovery of a bacillus by Winogradsky

which had the faculty of stimulating Nitrification has figured largely in the so-called nitrification theory, but this also may be laid aside to await further proof. This theory is founded upon the presence of the above micro-organisms, upon the occurrence of nitrous acid in the urine and upon the favorable influence of phosphorus which reduces the process of oxidation in the organism and the favorable influence of chloroform which has the effect of destroying the nitritic ferment.

Unfortunately the bacteriological and chemical findings have not been confirmed by others, the influence of phosphorus may be explained in other ways and it is hard to understand how the use of chloroform in connection with the organisms said to be found in the uterus and vagina, would so act as to prevent their increase in the vascular system.

The theory which seems to stand the practical test most satisfactorily was promulgated by Fehling and was stated by him as a trophoneurosis of the bones due to conditions of the vaso motor vessels of the osseous system which resulted reflexly from an irritation of the ovaries.

The many workers on this theory have found only one constant anatomical change in the more or less pronounced hyaline degeneration of the vessels and hyaline masses in the stroma, although to be sure investigations on the ovaries in the initial stages of the disease are lacking.

In consonance with this must be mentioned the theory advocated by Fellmer. He believes that under normal conditions the maternal organism supplies the phosphates and lime salts which are essential for the building up of the child's body. If there is a more pronounced destruction of lime and the phosphates, a part of the surplus will be excreted and a part will be deposited in different parts of the body as for instance on the under surface of the skull as osteophytes.

If the supply is not sufficient or the demand abnormally large, the body itself is called upon to supply the necessity as in conditions of inanition.

If the theory were true it would be found in conditions other than osteomalacia, hence it is important that in non-osteomalacic pregnant women, Schrader found in the 2d half of the pregnancy at least a third who were affected with pain on walking, great sensitiveness of the bones in general and of the small pelvis in particular and especially of the inner surfaces thereof.

The pain seemed greatest in the horizontal rami of the pubes, in the illium and at the junction of the ascending rami of the ischii with the descending rami of the pubes.

If, now, the supply of lime and phosphates is too small or the excretion too great as a result of the increased secretion of the ovaries or if in consequence of too frequent pregnancies, the organism does not have the time to create in the proper way and in physiological amounts the appropriate chemical production, or if in consequence of too prolonged lactation there is an abnormal excretion of lime, the physiological interchange of lime salts becomes pathological. That such Physiological interchange of lime salts is continually present is shown by the many examinations of the excretions as well as the presence of marrow elements in the blood as Tschistowitsch showed. That not only the increased excretion or the diminished intake but before all the needs of the child produce the disease is shown by the fact that the disease is nearly always found in multiparae, and secondly the bones of the child are only very exceptionally affected by the disease, only one such case being found in literature.

As Fellmer says the osteomalacia of pregnancy is really only an abnormal increase of the physiological interchange of phosphates and lime salts in pregnancy.

It is a well known fact that fractures during pregnancy take much longer time to secure firm union than outside the pregnant state. The senile osteomalacia is also easily explained by this theory as an exhaustion of the lime of the body from frequent pregnancies, closely following one another and the continuation of the unusually large ovarian secretions as well as an inability to assimilate perfectly the foods containing lime salts, hence the system cannot make up the loss.

I personally believe that the etiology of the calcific changes in osteomalacia and rickets will be traced ultimately to a common or very similar source.

Diagnosis: In well marked cases there can be no doubt of the diagnosis but some care must be taken to avoid confusion with other pelvic deformities which present similar characteristics, such as the kyphotic, the Robert, the pseudo-osteomalacia, cancerous and fractured pelvis. Among the early signs will be found contraction of the conjugate which in connection with the deep pelvic recess is characteristic.

Other early signs are the contraction of the transverse diameter of the outlet, and a shortening of the inter trochanteric distance. A history of severe rheumatoid pains which increase in severity with each pregnancy is important. The marked pain, the difficult locomotion the decrease in height in connection with pelvic changes which make each successive labor more difficult, all combine to produce a definite and unmistakable complex of symptoms.

Therapy: Acting on the theory of the ovarial origin of the disease Senator, Latzko, Schintzler, Bernstein and Fellner have given ovarian tablets to eight cases in all, without results. Spontaneous recovery has occurred in some cases. There are however only two methods of treatment which may be considered curative and worthy of serious attention at present.

The first is the administration of phosphorus which in 59 cases reported gave 33 cures and 26 improvements, and only in occasional instances does entire failure result. The objection to phosphorus is that of time, from twelve

to eighteen months being required to get results and it may then fail.

Castration with emptying of the uterus gives excellent results. Out of 100 cases, 86 were cured, 4 improved, 7 died and 3 remained unaffected.

Although the majority of cases have phosphorus in addition to castration, the latter exercises by far the most potent influence over the disease. The recovery begins usually within 24 hours and is absolute, by which is meant that cases observed from one to eight years show no signs of recurrence. The process in the bones is somewhat longer delayed than the subjective recovery, but in them too the cure is complete and in a certain degree the normal size and shape are restored, at least measurements of the pelvis are larger when the cure is complete than during the disease.

The obstetrical management presents some interesting phases, for instance under narcosis the flexibility of the bones may be such that many labors are possible that could not be considered if the pelvis possessed its usual rigidity. Thus in a c. diag. 7.5 cm. a nine months child was spontaneously born.

The greatest difficulty is at the pelvic outlet, which may be easily understood by observing the positions of the coccyx and sacrum, and tubera ischii. Attacks occurring during pregnancy should be treated by phosphorus, rest in bed and stimulating food until near the end of the pregnancy when C. sect. with removal of the ovaries will save the child and in a majority of cases (90 per cent.) prevent recurrence. In pelves in which the bones are hard and the deformity fixed, labor is almost impossible. If the attack is severe and progressive the uterus should be emptied and the ovaries removed while phosphorus is given internally.

Pyogenic Inflammation of Bone.

Bayard Holmes: When we have a pyogenic inflammation of bone we can consider it from a pathological or clinical standpoint. I shall only present the clinical features of the pyogenic infection of bone and such pathological observations as are particularly interesting from a clinical standpoint.

Pyogenic infection of bone is observed in three principal forms or manifestations. From an etiological standpoint, the infection of bone may occur through direct implantation of the infection into the bone through an external wound, or it may occur in the course of pyemia, attended by abscesses in other parts of the body, in joints, in the liver, in the lungs, in the kidneys or other viscera. In the third form there may be a distinct and particular form of infection which is found to affect bone marrow alone and no other tissues of the body. It is almost an infectious disease in itself. However, there is no pathological evidence, so far as I know, that the infection of bones in these three clinical manifestations is at all separate or distinct; that these infections are uniform, and that they are the result of a particular microorganism, the yellow pus microbe. It is possible in pyemic infection that other organisms may infect bone, but if they do, they manifest themselves in such different ways as to result in almost a distinct disease. I have no reason to speak of the direct infection of bone. It is a simple infection similar to that of other tissues when it occurs by direct implantation of microorganisms into the bone tissue itself. The spread of this disease is similar to that of the spread of infection in other parts of the body, and the only difference from a clinical standpoint depends upon the unyielding and solid material in which the infection takes place, and the fact that the sequestrum which is formed in the course of the infection does not readily flow out of the opening through which the infection gains access.

The second form of pyogenic infection of bone which occurs in the course of pyemia is also one which has little surgical interest. The diagnosis is usually easy. There is a coincident endocarditis; the microorganisms are detached from time to time, are thrown into the circulation, and locate themselves, first, in the joint, then in the bone, then in some other organs of the body until, either through the disappearance of the primary focus or the atrium of infection, and the discharge of the infection, wherever it is located, the patient gets well, or the patient dies in the course of the disease. The real osteomyelitis of which we think, and which we ought to bear in mind, is a sort of acute infectious disease which is termed acute osteomyelitis. This is a disease which occurs, for the most part, in the very young. It rarely appears after thirty, and it usually appears before the age of ten. It is almost, in every instance, a secondary disease; that is, it follows some other infectious disease of a recognized infectious nature. For instance, it is most often found in children after measles, scarlet fever, whooping cough, or some other depressing infectious disease, which probably does two things—it diminishes the vital resistance of the patient, and opens some atrium of infection to the pus microbe. It is only in a few cases that we can find the atrium of this infection.

The history of acute osteomyelitis is often a very rapid and terrible one. A little girl has lived all her life in a dark basement. She has measles, a light attack; she is not very sick; has a little cough; is depressed, and has little appetite. After a reasonable length of time she apparently recovers, and goes out to play. She gets into a swing, has a good time for an hour or two, and possibly in the course of this amusement strikes her leg, elbow, or her knee against some hard object. It produces little pain; she does not cry. That night, perhaps in the middle of the night, she wakes up with a terrible shriek, and when the mother goes to the bedside, thinking the child has night terrors, she finds the child sitting up, with anxious face, with her knee up in her arms, and she is shivering from a terrible chill, complaining of terrible agony, and resists any attention which the mother may wish to give. The child will not allow the mother or anyone to approach her, and in the course of an hour or two she is found complaining of every footstep in the neighborhood of the bed. By this time, if a physician is called, he finds that the child has a temperature

of 104-5, that she has just passed out of a chill, and that she complains of an excessively tender spot about the middle of the tibia, the humerus, or some other long bone. This spot is so small it can be discovered only by the application of the end of the finger with a little tap, and only after the patient's confidence has been fully acquired by the physician. This little tap will elicit the greatest possible pain only in the area not to exceed one-half inch in diameter. If the child is given a hypodermic injection of morphine, the temperature remains; a leucocytosis appears, and in the course of twenty-four or forty-eight hours, sometimes two or three days or at the end of a week, other painful spots in other bones of the body appear, until at last, at the end of a few weeks or months, there are eight or ten, fifteen or twenty spots in which the same process has gone on, with some chills, and some rise of temperature. During all this time the child has lost weight. The focus of infection has shown itself as a subperiosteal abscess, which has penetrated the skin and has discharged itself. The pain in this region has subsided and she complains of pain in some other part of the body. After a time, worn out with infection, on account of abscesses in the kidney and in other parts of the body toward the end of the disease, the patient succumbs; and the autopsy shows what is ordinarily observed in the course of this osteomyelitis.

The history of the cases, when early operation is instituted, is quite different. I have never seen in my own experience a case of acute osteomyelitis in a young person which was treated promptly by surgical intervention. When a child is observed by a person who recognizes the importance of the case during the first twenty-four hours when the focus in the bone is approached by an open incision and chiseling away the bone, the only thing which is found is an area of increased vascularization. The medullary portion of the bone, in the very middle is found to have a vascular area. If cultivations are made, the microorganism of osteomyelitis will be found, which is the yellow pus coccus giving a musty smell when developed upon potato, and in other respects seems to be similar to the ordinary staphylococcus aureus. Then, in the course of one or two hours the temperature subsides; it is 99; it never rises again unless the primary atrium of the disease remains and gives rise to a second or to a third localization of the infection, in which case it may be approached in the same way with the same prompt and gratifying results.

In the case of older individuals the chances of prompt surgical treatment are much greater. They know where the pain is, and they complain of pain in this or that particular spot. I can illustrate this by citing a very interesting case which came into my hands some years ago.

The patient was a young man, who jumped off a street car at Forty-third street and Drexel boulevard and hurt his tibia some time in the evening. He went home and to bed. About midnight he had a terrible chill, with a coincident agonizing pain in his tibia. He called his physician, but he could not go, but recommended me as a nearer physician. I went there at one o'clock. The young man had just returned from Hot Springs, where he had gone on account of gonorrhea. He had still some evidence of the disease. He was sitting up in bed. He would not allow me to approach him. His painless leg was covered with bed clothes, while the painful leg was exposed bare. He would not for several minutes allow me to touch him. He would not let me put a thermometer under his tongue; but, at last, after I had secured his confidence, and assured him I would not hurt him, he allowed me to take his temperature, which was 104, pulse above 120. He had just come out of a severe chill, and he still felt uncomfortable. He allowed me to palpate the tibia with the end of the finger, and at a certain point I discovered an excessively tender spot upon the slightest thump on the bone. I marked the spot with ink. I examined his heart to find he had no evidence of endocarditis. I examined into his history, and discovered the fact I have mentioned. I looked him over carefully for pneumonia, because the chill was terrible, and then, having made a diagnosis, and his mental condition now being rather unreliable, I took the members of his family aside and told them what was the matter. I told them it was a case of acute osteomyelitis, the only one I had ever seen so early, and asked that I be allowed to operate at the first light. I gave one large hypodermic of morphine to relieve the pain, having had the assurance that I was to operate in the morning. Not satisfied with my own advice, the advice of two other men was secured, one of them arrived at the house in my absence, wrote his advice, recommending that the leg be poulticed for two or three days, and if at the end of that time the same symptoms continued, then I should approach the focus with a chisel. The other was Dr. Fenger, who, after I had telephoned him I had a case of acute osteomyelitis, left his work at the hospital and came to see the case. As soon as he had made an examination, he advised operation at once. I operated on this patient with the assistance of Dr. Johnson and Dr. Fenger. Having penetrated the bone, I found an area of vascularization not larger than a hazelnut, which I carefully scraped out. At the time of the operation the patient's temperature was almost 105. He was delirious, and in a wretchedly septic condition, appearing to be almost dazed by the infection, even with the one dose of morphine which I had given about one o'clock. His temperature fell soon after the operation to 99. I packed the wound, and subsequently made five dressings, leaving a plaster cast on, which I opened and closed over the dressing. He had absolutely no symptom after the operation. At the end of the fifth dressing he refused to pay my bill, took off the cast, and began to walk around town. He fell off an Illinois Central train, and was taken to St. Luke's hospital with a fracture of the tibia at the point where my operation was done, and was taken care of by some member of the staff. This is the only case of acute osteomyelitis which I have ever observed during the first twenty-four hours of its progress.

I have seen a large number of cases in the young late in the course of the disease, and I think three other cases in adults on whom

operations were done after the bone was so destroyed that a considerable portion of it had to be removed.

The point of great interest which attaches to acute osteomyelitis is one of early diagnosis and prompt surgical intervention at the onset of the disease. The disease, after it has once begun, after it has involved many bones and after the patient is worn out by sepsis, becomes one of the most serious conditions we have to deal with. Early in the case, if the primary focus of infection can be reached, if the atrium of infection can be removed, whether it be tonsil, or middle ear trouble, etc., the chances for recovery are so great that I would urge every one to make an early diagnosis, if possible.

I would like to speak of a case that recently came into my hands of twenty years' standing. A very intelligent young woman consulted me the other day, complaining of discharging sinuses at the occiput. Enough pus was coming out to saturate three or four dressings a day. She had had for twenty years infections in different parts of the body. They began on the fourth day after a chill when she was about a year old, and followed a rash. I presume this rash was a scarlet fever, but since that time she has had epidemic scarlet fever. After being sick for about two weeks, there appeared over the right eye a boil, which was opened, and pieces of bone during the following three months came out. The sinus closed up. The whole side of the head was swollen at the time, and at no time after that was she without some part of the scalp being swollen with pus which discharged, and small pieces of bone coming out. When she was five or six years old an opening was made over the mastoid and several pieces of bone sloughed out. The opening closed up, and since that time there has been no opening in that neighborhood. Openings have appeared elsewhere; she has had pieces of bone come out of her arm, etc., and I don't know what parts of the body have not been affected. Nearly every bone in the body has been attacked at one time or another. One of the hip joints was affected. It was opened and pus was discharged. When I examined her I went over the history of the case as well as she could give it to me, and presumed that the swelling of the right side of the face, with the appearance of an abscess over the right eye, indicated or stood for suppurative middle ear disease, which she was known to have had by a discharge of pus from the external auditory meatus within a week after the swelling of the side of the face. I presume the primary infection was through the Eustachian tube into the middle ear, into the antrum, and from there over the face and other parts of the body, lasting for twenty years. However, after I operated on her, I created an opening in the bone sufficiently large to find there was a large granulating sinus leading toward the right side of the head just under the skull. Then I abandoned that method of approach and made an opening in the bone where I would ordinarily open for extradural abscess, namely, about an inch behind and an inch above the external auditory meatus. When the chisel passed through eburnated and thickened skull at this place I am sure that at least six ounces of pus poured out through that hole from somewhere. This woman was very intelligent; she was witty and bright before this operation was performed, and I certainly had no suspicion, nor anybody else, that the skull contained any less than the ordinary amount of brains, yet there was room for six ounces of bad pus to come out. Believing I had so extensive a malformation of the contents of the skull, I decided to leave drainage and wait until a subsequent time before operating to remove the mastoid cells, antrum, and any sequestrum which might have been left behind from the old middle ear disease. So I am waiting now for that. I speak of this case as one in which a girl suffered from osteomyelitis for all these years, and the presumption is that a diagnosis could have been made much earlier in the case, and that the primary atrium of infection was through the middle ear and from there into the circulation similarly.

Surgical Treatment of Certain Fractures.

L. L. McArthur, Chicago: Mr. Chairman and Gentlemen—There has been some misunderstanding on my part as to the subject for which I have been asked to open the discussion. On receipt of the program I learned that it was to be on "The Surgery of Bone Diseases," whereas I had understood "Surgery of Bones" and had selected the special topic of operative treatment of fractures as offering perhaps something in the way of interest. The surgery of bone diseases may be said to have been perfected years ago, except in so far as asepsis and antisepsis has been a factor. It would then be futile to take up your time by simple repetition of the methods which differ but little from the recognized procedures of thirty years ago. I have instead endeavored to direct your attention to what may be accomplished in the handling of some special fractures, which until very recently have been the source of much concern both to the patient and his physician.

In our modern hospitals under the new aseptic and antiseptic methods, the surgeon who has demonstrated **to his own satisfaction** his mastery of "surgical cleanliness" has no undue hesitation in opening any irreducible fracture, enlarging any compound fracture wound, or opening joint communication with such a fracture in order to meet the surgical indications in the given case.

In doing this there are I believe a few factors which aid in securing a successful result which you will permit me to re-emphasize.

I. The necessity of avoiding the handling of the bone fragments with the ungloved hand. Those of you who have done bone work prior to the days of gloves have, I have no doubt, had an experience similar to mine: this is to find on completion of the operation that numerous small abrasions of the hands with loss of skin substance had occurred. These had been made by the sharp jagged edges of the bones or the cut ends of the wires in their insertion. What had become of the fragments of epidermis? Left in all human probability in the wound. Now it has been demonstrated to a conviction that although the hands may be washed so

clean that no culture can be obtained from their surfaces, if with a sterile knife or scissors a small particle of the horny layer of the skin of the same hands be removed and planted in culture media, growths will almost invariably be obtained. In other words, with the ungloved hand we are liable to plant an infection that may undo an otherwise ideal procedure.

I desire, therefore, to urge that all bone wirings, resections, etc., be done with protection to the hands, and that **not** with the delicate laparatomy glove, but the "extra heavy" quality of pure gum glove, especial care being given from time to time during the operation to noting their integrity. Let the command Die Finger fort vom Gelenk apply also to fracture fields.

II. That when it is feasible to obtain 48 or 72 hours preliminary sterilization of the field of operation, without endangering the chances of the patient's recovery, this should be done and the recognized methods employed. Certain compound fractures may present conditions of so probable infection that such a delay would be ill advised. Good judgment therefore will be here required. Simple fractures complicated by irreducible fragments, if these are not making direct pressure on the vessels and nerves, can easily be left until all necessary cleansing and sterilizing of the field shall have been accomplished. Again **simple fractures** complicated by connections with joints (example fractured patella, ulna, etc.) should be allowed to pass the period of traumatic reaction before operation. Since there is always a traumatic synovitis induced by the injury and the blood extravasation, that could very easily be made worse in its inception, but which in the stage of subsidence is not likely to be. We wait a week or ten days before such type of fractures are operated.

III. The Periosteum. The influences of old teachings still obtain among many operators inducing them to reflect back the periosteum from the site of drill hole instead of using every pains to avoid its reflection. Periosteum may be reflected in an unbroken long bone without causing a death of the uncovered portion, but when the periosteum is reflected near a fracture, the circulation is so badly impaired that a certain area may be without nutrition. If then the wound be not absolutely sterile, the aseptic bone graft becomes a septic necrotic mass and may defeat the object of the operation. Today, no surgeon, I believe, is under the impression that absolutely no micro-organisms gain access to his field of operation, but considers that if he leaves no dead tissues, large blood clots, etc., behind, the few that do gain access will be cared for by the normal antiseptic properties of the tissues. Hence loose fragments in the wound, and bony ends without periosteum, being liable to necrosis, should be avoided.

IV. Site of election for insertion of wires.

As a result of several experiences with the fracture of the wire used for the fixation of broken bones, I think some consideration of the mechanisms should attend their application. One's early experiences with wiring begin usually with the making of the drill holes for the wires in the most easily accessible parts of the wound, without much regard to the function they are to subserve. The prevailing idea being that the essential to be obtained by wiring is as nearly rigid a union as possible, the wires are inserted and tightened with that idea in view. To accomplish this the wires are placed at those places which the operator believes will receive the greatest strain, while as a matter of fact if the wires are applied so that the probable movements in the extremity will **not** exert a great leverage upon the wire loops uniting the bones, they will not be broken as so many are, and still subserve their purpose.

Character of Wire to be Used. Ordinary wire as supplied by the instrument makers and as used in the clinics is too frequently of a very fine grade, altogether too weak to sustain the strains to which in a muscular subject it will be subjected. I would therefore urge that a number from 12 to 15 scale be used instead of the 18 to 20 ordinarily for sale. (Example passed around).

Medico-legal Aspect of Certain Fractures. With the new era of antiseptic treatment of compound complicated fractures, one is justified in daring under proper conditions to attempt the saving of limbs for which ordinarily speaking a surgeon might be condemned by his confreres. In such cases to avoid possible legal complications, the dangers should be explained to the patient before witnesses and his consent obtained (in writing if feasible).

Tuberculous Disease of Bone.

John Ridlon: This subject, as it appears on the program, was selected by the Secretary of the Society. It is a large subject for a few minutes' talk particularly when we consider that Professor Senn occupies five hundred Royal Octavo pages in dealing with the subject under practically the same title. Personally, I have had very little experience in bone tuberculosis outside of that form of the disease which is located in the bone ends and which ultimately involves the joints.

I shall say nothing about pathology or morbid anatomy other than to remark that from a practical standpoint the symptoms accompanying these cases are usually the same whether the disease begins primarily in the bone ends, or it reaches the bone ends as secondary to synovial disease. Briefly, and in a general way, the symptoms of joint tuberculosis are loss of function, or diminution of function, due to involuntary muscular spasm restricting the motion of the joint; deformity at the joint from this involuntary muscular spasm, and muscular atrophy, in practically all cases. In fact, in twenty-five years' experience I have only seen one case in which there was no atrophy of the muscles controlling motion at the joint. There comes in most cases distinct pain. As a rule, this pain is at the knee, although it may be at the hip. On the other hand, the case may go through the entire course without any complaint of pain at any time, for as long a period as four years. Next comes localized tenderness, which is less frequently present than pain. And next, we

have abscess. An abscess is present, so that it can be seen in about half of the cases. So much in a general way for the symptoms which will enable you to make a diagnosis of tuberculosis in the bone ends near the joint.

If the disease has started as a synovial tuberculosis and has extended from there into the bone, you will ultimately get swelling in addition to the other symptoms, even if there is no tubercular abscess. But if the disease has begun in bone and has not entered the synovial cavity, you will not have swelling unless abscess is present.

As to the prognosis of bone tuberculosis, and the time the disease runs, it may run without treatment from one year to many years, perhaps ten or more. With treatment, the duration of the disease is diminished very considerably, but hardly any case can be expected to recover under mechanical treatment in less than two to four years. Under operative treatment one may be more fortunate, or one may be no more fortunate.

As to function of the joint and of the limb without treatment, deformity practically always results and remains, and in a large per cent of cases results in a true or false ankylosis of the joint. Under efficient mechanical treatment almost all cases can be corrected as to deformity. A considerable number of cases will recover under mechanical treatment, with good motion of the joint. Most of them will recover with some restriction of joint motion and some will recover with no motion of the joint. Under operative treatment the result as to function is less good than under mechanical treatment.

As to the treatment of these cases, it may be by mechanical means alone; it may be by operative means alone, or it may be by a combination of both the mechanical and operative means. The principles of mechanical treatment are to correct any deformity existing in the neighboring joint, to immobilize the parts sufficiently to control all muscles that move the joint, to protect the joint from weight-bearing, if it is a joint in the lower extremity, to save it somewhat, if it be one of the joints of the spine, or more than one, and to improve the patient's general condition, so far as possible, and simply wait for him to get well. And he gets well, in the early cases, in a year or two; in the later cases, in from two to four or six years, with a better functional result than can be had in any other way. The worst results from mechanical means will be better than the best results that can be had by operative procedures alone. By operative measures in the treatment of these cases, a more immediate result can be had in a considerable proportion of them. Three months may be a fair time if one is successful in entirely removing all disease. But, as a matter of fact, these cases are comparatively rare, and are comparatively fortunate cases if the disease is cured in that length of time. Most cases must be treated mechanically almost as long after operation to get a good functional result, and to prevent deformity, as if they were not operated at all.

As to a combination of the two methods of mechanical and operative treatment of tuberculosis in bone ends. If the operative measures be intelligently performed, and if the mechanical treatment after operation be skilfully and successfully carried out, the best results can be had by the combined method of treatment. By intelligently performed surgical operations, good results can be secured if one knows exactly the location and extent of the bone focus, as can be told by an X-Ray picture. If then the negative be placed in the window of the operating room and consulted during the operation no unnecessary bone need be removed. But this is only preliminary to the treatment of the case. If the case is simply immobilized until the wound heals, it will be found, weeks afterwards, that the result as to function is not good. By efficient mechanical treatment after an operation, we mean that the patient should be treated with such apparatus as shall maintain the limb at its normal length and in its normal position; shall positively prevent any deformity in the joint; and shall give continuous, fixed, effective extension, so that no shortening shall result. The patient must be kept in bed continuously with this fixation and traction apparatus, until an X-Ray picture demonstrates that the bone cavity resulting from the removal of the disease has been filled with reasonably good and solid new bone. After that the patient may be allowed up for the first time, and to get about on his apparatus, maintaining fixation and traction, and continue to use the apparatus until all symptoms of the disease have disappeared, whether it be a week, a month, or a year, which it is more likely to be.

By omitting the mechanical treatment, one may not get a good functional result for the patient, and by omitting the operative treatment one may not get that rapidity of cure which can be expected from a thorough removal of the disease.

Regular meeting held in Schiller Hall, December 2, 1903, with the president, Dr. R. B. Preble, in the chair.

Report of a Case of Sympathetic Ophthalmia.

Oscar Dodd: This patient, a man aged 37 years, came under my care at the Illinois Charitable Eye and Ear Infirmary on September 30th, and I got the following history: About four months ago, while mining coal, he was struck in the left eye by a foreign body. An ulcer of the cornea developed, and he was referred by his physician to an oculist in a neighboring town. He found a large ulcer of the cornea with the anterior chamber about a third full of pus. He cauterized the ulcer and carried out treatment, but as that did not check the progress, four days later he performed a Saemish incision that is a cut through the ulcer, letting out the hypopyon. The eye then progressed favorably, and in a few weeks he went home. The ulcer had healed over, the eye was quiet and the tension was normal. He could see hand movements at a distance of five feet and see a light over the whole field. He reported to the doctor occasionally, and one week before the last visit he found the eye

slightly more inflamed and the tension diminished. He changed the treatment, and at the last visit the eye looked well and the tension was normal. He was instructed to return at once if the eye gave him any trouble, and went back to his work.

A few days after this and about seven weeks after the injury, he began to have trouble with the right eye. Instead of returning to his former oculist he went to one in a neighboring town. He, thinking it was a syphilitis iritis, put him on treatment, mercury and iodides internally and atropine in the eye. There were adhesions of the iris to the lens, which partially broke up under treatment, and the vision improved to 2-3 of normal by August 1st, and remained so for about a month. The injured eye had remained quiet during this time with only a few congested blood vessels at the lower side of the cornea, and there was good light perception.

Just before the right eye grew worse the injured eye became soft and inflamed, and the doctor then realized that it might be the cause of the trouble in the other. He did not remove it, however, giving as his reason the old teaching (which should be eliminated from the text books) that the exciting eye should not be removed after the beginning of sympathetic inflammation. His sight grew rapidly worse, so that within two days the vitreous was filled with opacities, the pupil covered with exudate, and when he came to Chicago two weeks later he could only see fingers at six inches.

I found the characteristic appearance of sympathetic ophthalmia, the iris drawn back at the periphery, pupil of fair size and filled with exudate. The eyeball was intensely congested and some tender to pressure. The injured eye had a large opacity of the cornea, into which the iris was adherent, the anterior chamber was obliterated, the tension minus and no vision. I had it removed at once and put him on thorough treatment. At first he was given Sodium Salicylate, two drams a day, with inunctions of mercury, atropine in the eye, hot applications and subconjunctival injections of salt solution. Under this his vision improved so as to count fingers at 4 feet, and the exudate absorbed from the center of the pupil. Without any known reason three weeks later the blood vessels of the iris became enormously congested and new ones formed on the surface of the iris so they stood out like reddish tumors. The pupil filled with exudate and hemorrhages occurred in the anterior chamber, so that vision was reduced to the perception of light. I changed the treatment to the iodides and mercury, but as it did not improve, I started him on the oil of Wintergreen, 30 minims three times a day. The eye has grown better and the exudate has partially absorbed from the pupil. At present the iris is pushed forward by the exudate behind it and the blood vessels from the margin of the iris pass into the exudate in the pupil. He can count fingers in a good light at about 12 inches.

A careful pathological examination of the injured eye by Dr. E. V. L. Brown, the pathologist at the Eye and Ear Infirmary, showed the following conditions: The posterior part of the eye was practically normal, almost no changes being present in the choroid, retina and optic nerve. The anterior chamber was obliterated and the inflamed iris was in contact with the cornea and adherent at one point. The ciliary body was the principal seat of inflammation, a large mass of exudate being thrown out, binding the iris, ciliary body and lens together. At one point a small foreign body was found imbeded in the ciliary body. In the vicinity of it are some giant cells due to the irritation. It is undoubtedly a minute piece of coal or stone not more than half a milimetre across in the section where it was found. Whether any other particles were in the eye we can not say. No bacteria were found in the specimens examined.

The mistake of considering this case as one of simple ulcer of the cornea was a most natural one, for at the time he was first seen, the anterior chamber was filled with pus and no sign of a perforation was present. That the small foreign body lodged in the ciliary body was the cause of the subsequent trouble with the other eye is without question and should be a warning in handling all cases following injury.

The manner by which inflammation is produced in one eye by an exciting cause in the other is still a disputed question. There are several theories, the transmission of germs along the optic nerves, the irritation of the ciliary nerves, the transmission of the toxines through the lymph spaces around the nerves, etc. As to the conditions that may excite inflammation in the other eye, we may say that any wound of the ciliary body or base of the iris, especially if followed by an inflammation, is liable to produce it. Foreign bodies in the eye are a source of danger at any time and may cause the loss of sight years after. I have known two cases of sympathetic ophthalmia to follow perforating ulcers during the course of gonnorrheal conjunctivitis.

The inflammation in sympathetic ophthalmia differs from simple iritis in several particulars. The exudate in iritis is from the iris alone and will fasten the margin of the iris to the lens, and if severe, may fill the pupil. In sympathetic ophthalmia the exudate is principally from the ciliary body filling in behind the base of the iris and drawing it back so it is fastened to the lens over its whole extent. The pupil is filled with exudate, as is also the vitreous making the eye liable to shrink when the inflammation subsides. Should the eye become quiet enough to admit of operative measures, the only way the sight can be improved is by the removal of the lens with a portion of the iris and exudate. If this does not excite an inflammatory reaction to fill the opening, it may be possible to get some vision.

The points I wish to call to your mind by this case are: The necessity of care in watching any case of injury that sympathetic inflammation may not develop and the danger of passing over any trouble in the other eye, however slight, as being a simple matter. I wish

particularly to emphasize the hopelessness of treatment in these cases, as no severe case has ever been cured.

Discussion of Dr. Dodd's Paper.

Willis O. Nance: I have had the opportunity of following this case from the time the patient entered the hospital. At the time of the first examination I was struck with the malignancy of the process and this has continued up to the present. These cases of sympathetic ophthalmia are of particular interest not only to the ophthalmologist but also to the general practitioner because of the usual fatality as regards vision, and the absolute necessity of early and correct diagnosis.

As regards the futility of the treatment, as mentioned by Dr. Dodd, I wish to refer to the recently advocated treatment of Valois. This consists of the injection of cyanate of mercury into the orbit of the exciting eye after its removal. He reports two cases in which the treatment was given a trial. One of the cases recovered with normal vision; the other with 20-30. These results ought to be stimulating to us.

The lesson to be learned from these cases is that we should be conservative as regards prognosis in all cases of injury of the eye, no matter how trivial they may seem to be at the first examination. A short time ago a man came under my care who had his eye injured in a drunken brawl. He consulted a physician at the time of the injury and was under his care for about a week when he was dismissed with the statement that the eye would be alright in another week. The injury was a wound of the ciliary region which is more apt to be followed by sympathetic ophthalmia than any other would. The tension of the eye is low; the iris is discolored and the chances are that a sympathetic ophthalmia will result unless the eye be removed at once.

Dr. T. J. Sullivan presented **Patients illustrating non-union of Fractures.** The remarks of Dr. Sullivan have not been received.

Discussion of Dr. Sullivan's Cases.

Chas. C. O'Byrne: I recently saw a case of non-union that, in spite of three operations, failed to unite. A street car conductor broke his tibia in three places; at the ankle, in the middle of the bone and near the upper end. The upper and lower fractures united very promptly, but the middle refused to unite, possibly because of the destruction of the nutrient artery at that point; or, the circulation in the bone was insufficient for callus formation at the site of all the fractures. There was no lack of apposition in the fragments, nor any overriding, nor was there any interposing tissue, and yet no callus was formed. The ends of the bone were freshened and wired but a false joint formed; firm fibrous union resulted but no callus. I believe that it simply is impossible to get any union in that case.

I am glad that the subject of fractures was brought up because this subject is neglected in our schools; the time being given to more spectacular operations, such as laparotomies.

The treatment of compound fractures has bothered me more than the treatment of a simple fracture. In a case of delayed union that we had at the County Hospital, suppuration at the ends of the fragments occurred. The fracture was a transverse one. The skiagraph showed the bones in good apposition at the end of the fourth week, but instead of having callus formation, there was a formation of pus. The wound was opened and drained, and finally, as his condition did not improve, we amputated the leg. He failed to improve, and when we discovered that there was pus in the capsuke of the hipjoint, disarticulation of the thigh was done but the patient did not survive the operation. There was a fatal result from an apparently trivial injury. The pus seemed of a mild character and the patient had little fever. Undoubtedly the infection had spread to the hipjoint before we amputated the leg.

Dr. Robert W. Hardon read a paper entitled **Hypernephroma of the Kidney,** with report of the case. This paper has not been received.

Discussion of Dr. Hardon's Paper.

A. C. Croftan: I wish to correct one misconception, viz.: that I diagnosed the character of the tumor before the patient was operated. I was called in consultation to decide whether we were dealing with a stone and hydronephrosis or a tumor of the kidney and I decided in favor of the latter diagnosis. I expressed the hope merely that it might prove to be a hypernephroma of the kidney because I was interested in this class of tumors.

Dr. Hardon mentioned the peculiar chemical reactions of hypernephroma tissue, that I described in Virchow's Archiv some time ago. These are really so striking and so easily verified at the operating table, that they can be used for diagnostic purposes without difficulty. I think it is possibly in part due to the introduction of these tests that so many of these tumors have recently been described. Here in Chicago there seems to be an epidemic of hypernephroma. Microscopically, unless they present such a beautiful picture as this case, they are not diagnosed easily; chemically it is an exceedingly simple matter for hypernephroma tissue gives exactly the same reaction as suprarenal tissue. These typical reactions of suprarenal tissue, that I first described; are the following:

(1) A solution of iodine and starch has a blue color: if mixed with hypernephroma tissue this blue color disappears immediately. I make an iodine and starch solution: pour it into a mortar and grind up with it a little piece of the suspected tissue. If it is hypernephroma the blue color disappears in a minute or two. Dr. A. O. J. Kelly, of Philadelphia, and I worked this out very carefully and found that no other kidney tumor gave this reaction nor does normal kidney tissue give it. A man in Cincinnati, I think, advanced the objection that P. D. & Co.'s thyroid, Libby's meat extract, Fairchild's essence of pepsin, and a few other things, gave the same reaction, but I told him that these commercial products would hardly be looked for by the surgeon when exposing a

kidney tumor and the gentleman has since subsided.

(2) Suprarenal tissue, and also hypernephroma tissue, possesses the power of converting starch into sugar. If you take a starch solution and add a little piece of hypernephroma tissue and leave the mixture in the incubator for six or seven hours, the starch is coverted into sugar, and you get a distinct Fehling reaction.

(3) If you make an emulsion of hyperphroma tissue and inject it into an animal, a marked glycosuria is produced.

The interesting feature about it all is this: That a tumor of this character which develops from microscopic rests inclosed in the kidney structure at some time, possesses not only the morphological, but also the chemical and physiological characteristics of the tissue from which it is derived. It is astonishing that these tumors do not create more systemic disturbances for we have here really an overgrowth of functionally active adrenal tissue and one should expect the entrance of so much suprarenal excretion into the blood would produce the same peculiar phenomena that we see in animals after the injection of suprarenal extract. As a matter of fact this is not the case and here remains a puzzling discrepancy to be solved.

A Case of Enormous Prostatic Calculus, Secondary to Traumatic Stricture of the Perineal Urethra—Suppuration About the Stone, Secondary Abscess in the Pelvis, Extensive Urethral-Rectal Fistula, Following Perineal Section for the Calculus—Perineal Rectoplasty For the Closure of the Fistula—Recovery.*

G. Frank Lydston: M. B., farmer, age 34, of Pierre, S. D., first consulted me on the 15th of June, 1900. His history was as follows: He had been well until four years previously, when his horse fell upon him, producing various injuries, the most severe of which was apparently a blow upon the perineum. This was followed by hematuria for one week. There was no urinary obstruction nor retention and he was apparently as well as before ten days after the accident. He remained well for six months. At the end of which time he noticed difficulty in micturition. This condition increased steadily. One year before consulting me he passed several small calculi—he has passed calculi at intervals since. At the time he first consulted me the stream of urine was very small and considerable difficulty in evacuating the bladder, with occasional chills, especially if the urethra was interfered with by instruments.

Upon examination I found a hard callous stricture in the bulbo-membraneous region, with secondary cystitis. This was permeable to a No. 20 Charriere. Perineal section was advised and preparatory treatment instituted. The patient meanwhile met some physician who told him he could be cured by medicine—the patient returned home after an alleged cure.

Nov. 28, 1901 the patient returned to me for examination. I found a large tumor in the prostate, jutting into the rectum, of stony hardness and absolutely immobile. Diagnosis of secondary calculus embedded in the prostate. The patient could still micturate and the urethra was permeable to 20 French. I proposed suprapubic section and perineal urethrotomy. The patient again consented, but deferred operation for several days, during which time he again fell in with medical charlatans who assured him the diagnosis was wrong and he could be cured by remedies. I secured a skiagraph of the stone ere he again departed for Dakota, cured by medicines, and did not hear from him again until Oct. 12, 1903, when he was brought to my office by Dr. Ruble, who gave the following history:

In May last suppuration occurred about the calculus and a secondary abscess formed in the pelvis. This was evacuated from the external inguinal ring. More than a pint of pus was evacuated and the abscess promptly healed. The calculus was removed from the prostate by way of the perineum and for some weeks the patient did very well passing his urine per vias naturales.

Some time after the perineal section it was noticed that a pouch containing fluid had formed in the perineum. Dr. Ruble opened this pouch, evacuating a quantity of decomposed urine and pus. The cavity did not heal and thereafter the urine and feces were discharged through the perineal opening and also appeared at the meatus. Urination took place entirely by way of the perineum.

When I examined the patient in October I found a large pouch in the perineum communicating with the perineal wound lined by pseudomembrane and at its posterior extremity connected with the urethra. In the perineal portion of the urethra was a firm callous stricture extending from the middle of the perineum to the bulbo-membraneous junction. On rectal exploration I found a fistula in the anterior walls of the rectum, about two inches in length and half an inch in width.

Operation. I made the ordinary v incision in the perineum. The urethra and rectum were separated to a point about one inch above the upper angle of the fistula. This point corresponded very nearly with the prostato-vesical junction. The operation was tedious but I succeeded in closing the rent in the bowel with three superimposed lines of chromicized catgut. The two lines first inserted were made continuous: the final line of suture was the ordinary Lembert. Especial effort was made to get as large a surface of denuded tissue as possible. When the suturing was complete a considerable buttress of freshened tissue covered the opening in the bowel. The callous stricture in the perineum was cut away, leaving merely a strip of mucous membrane on the roof of the canal. When this portion of the operation was completed the floor of the urethra was entirely gone from the middle of the perineum to the prostato-vesical junction, the internal sphincter vesicae being alone intact. The sphincter ani having been thoroughly dilated at the beginning of the operation, a large tube wound with iodoform gauze, was inserted into the bowel to protect the repaired area from disturbance

from gas and feces. The operation was completed by packing with iodoform gauze the extensive cavity which now occupied the perineal body as far as the orifice of the bladder. A catheter was retained for 24 hours, after which time no attempt was made to divert the urine from the track of the wound. On subsequent removal of the catheter the packing in the perineum was found so effective that the urine in great part began to flow through the normal channel.

The patient's present condition is apparently extremely satisfactory. The perineal wound is almost entirely closed and the urine escapes by the normal channel. No feces have escaped into the perineal wound. Rectal examination with the finger fails to detect any solution of continuity in the bowel, whereas previous to the operation the finger readily passed from the interior of the bowel through the fistula and as far as the length of the finger would permit into the perineum anteriorly and into the various pockets about the neck of the bladder. It will thus be seen that the primary union of the fistula was almost complete. Complete closure is probable. The calculus removed in this case weighs 720 grains.

Discussion of Dr. Lydston's Paper.

Wm. T. Belfield: Dr. Lydston's observation is unusual and valuable. It is to be regretted that the case did not come to operation at his hands earlier, as it might have been possible to decide the question, which even he cannot now determine, whether this calculus was not formed in the utricle, rather than in the prostate. A case is recorded in Oberlaender's Centralblatt in which a calculus as large as a goose egg was found between the bladder and rectum. It was removed and with it a piece of the enclosing sac which had the structure of the vagina, corresponding to that of the utricle. At a later operation, rendered necessary by the persistence of a fistula, the entire sac was removed. None of us pay much attention to the utricle; it is possible that many cases that we regard as lesions of the prostate are really lesions of the utricle, a matter of great etiologic interest.

Dr. Lydston (closing the discussion): The principal point of interest in connection with this case was the perineoplasty and the result obtained, because such operations for closure of a urethro-rectal fistula are not very promising. Another interesting point is the rapidity with which this stone formed, within eighteen months. It was not perceived either by sound or finger at the time of the first examination.

With regard to the relation of the calculus to the utricle, I am unable to say anything. I think it would have been difficult to outline the relation between the two at the time I finally diagnosed the calculus. The rectal tumor was so large that Drs. M. L. Harris and J. B. Murphy who saw the case were rather inclined to think that it was one of neoplasm of some kind. I had the point of vantage in the diagnosis because I knew of the passage of calculi secondary to the traumatic stricture.

It is unfortunate that I did not have the opportunity of operating on the case primarily, because in that event I might have been able to contribute something of more importance both scientifically and etiologically. I wish to again emphasize the importance of a free dissection and separation of the urethra from the rectum in these cases of urethro-rectal fistula. I believe that we often fail in the operation because the dissection is not sufficiently free and because we are inclined to try to get speedy union of the perineal wound after a plastic operation. I have just reoperated a case in which I made the mistake of endeavoring to get primary union instead of packing the cavity between the urethra and the rectum and allowing it to heal by granulation. Another point I wish to reiterate is the advisability in performing these plastic operations of trying to prevent the juxtaposition of the openings between the urethra and the bowel. We are compelled in these cases to work through a narrow incision and to split into two what is practically a buttonhole between the urethra and rectum.

The important physiologic lesson to be learned in such cases that patients in whom the membraneous urethra is destroyed are not necessarily affected with incontinence of urine. I confess that I was somewhat shaken in my belief that the membranous urethra was so important a structure as some hold with reference to its sphincteric action in micutrition.

Case of Surgical Kidney Diagnosed as Appendicitis; Almost Complete Anuria; Operation and Recovery.

S. M. Strohecker, Chicago: Mrs. W. B., married; 25 years old: Family history, father died of heart disease, 1901, aged 68; one brother died of consumption, 1902, aged 16; mother died, cause of death unknown, aged 33.

Personal history: She says she has had all the usual diseases of childhood. Last illness was typhoid fever in 1890, which kept her in bed 13 weeks. She fully recovered and was in good health until her present illness, which dates from February 28, 1901, when upon going down an unusually steep flight of steps she slipped and jolted herself severely, slipping down three or four steps, but did not lose her erect position. She complained of a great deal of pain immediately following this jolting, which seemed to be greatest on right side "near the waist" and in back. After resting a few moments, she was assisted up stairs, and for several days suffered considerably from soreness over abdomen and in muscles of back and limbs, but did not have a physician, and in a few days felt better.

On the 26th day of March, following, while riding on a street car, she was suddenly taken with severe pains in right half of abdomen, which she thought were excited by the jarring of the car in crossing the railroad tracks. Pains grew more severe and she was brought home and placed in bed. I saw her for the first time that evening. She was in bed; apparently suffering great pain. She had vomited at frequent intervals all afternoon and evening, which greatly increased the pain, in fact, even one

walking across the floor seemed to increase it. She had no elevation of temperature. Pulse was rapid and small.

Physical Examination. A woman weighing about 125 pounds; abdominal muscles rigid and board-like over entire abdomen; more so on the right side; the legs were flexed; palpation revealed nothing, as patient was too sensitive to allow thorough examination. No especial tenderness over McBurney's point.

Treatment. Pain was controlled with 1-8 grain of morphia hypodermically every two to four hours. Hot fomentations were applied to abdomen. Calomel in 1-10 grain doses, repeated until 1 grain had been taken. Next morning her bowels moved freely; abdominal tenderness had not lessened; bladder was not distended, nor had she voided urine. Nausea present, but no vomiting; no desire for food; she was quite thirsty. I ordered cracked ice and buttermilk. During the afternoon she voided a small quantity of urine, which was free from albumen and blood. Hot fomentations were ordered renewed and repeated at frequent intervals, together with a mixture of citrate of potash, F. E. Couchgrass, etc.

Patient at end of 48 hours was in practically the same condition. Next day she was more comfortable; pain had lessened, but aggravated on slightest movement. Urine remained scanty; about one-fourth the normal quantity. It did not contain albumin, pus nor blood. After a few days her appetite returned, but the abdomen remained tender. Under anesthesia it was thought that a tumor could be made out on right side, oval in form, its center opposite the umbilicus. Urine grew more scanty. I advised her removal to a hospital.

She was removed to the Presbyterian Hospital under the care of Dr. Graham, on March 31st, and kept under observation until April 15th, when she had a similar attack as before and was operated upon for appendicitis. The appendix was about 4 inches long, somewhat clubbed, held down by adhesions and had a concretion at its distal end. She remained in the hospital a few weeks longer; was brought home, and had frequent attacks similar to the first attack of March 26th; not quite so severe, however, but each one lasting for from a day or two to ten days or longer, each one leaving her much weakened.

She was run down, nervous, not able to do any of her housework, owing to pains it caused and weakness. Her urine remained scanty since her fall in February, 1901, and could not be increased by liberal use of diuretics, water, buttermilk, etc., quantity averaging ten to twelve ounces every 48 hours.

I suggested that she see Dr. Fenger who ordered a skiagraph taken but who died however, before giving an opinion. During the spring of 1902, she suffered from attacks more frequently than before, but did not consult a doctor, feeling it was useless, and simply let it wear away, remaining in bed a week or ten days. Each attack was similar in character: Sudden onset, pain, vomiting, tenderness on right side of abdomen, rigid abdominal walls. Her last attack began June 6, 1902, and when I called I found conditions similar to preceding attacks. A general anesthetic was given and again a kidney-shaped mass was felt in right side of abdomen; moveable; and about the size of a normal kidney. A cystoscopic examination was also made, but was negative as to results.

A provisional diagnosis was made of kinked ureter, prolapsed kidney, or some obstruction to outflow of urine, but probably not stone, as no albumin, blood or pus was ever found in the urine, until a few days before operation. She was removed to St. Luke's Hospital June 21st for exploratory operation, at which time she weighed 91 pounds. Her hemoglobin was 36 per cent, red cells 3,800,000 and white cells 5,600, and urine not over ten ounces every 48 hours.

Operation. Incision was made beginning about 1 inch below the 12th rib, extended downward and outward to crest of ilium. Muscles were divided and a large quantity of fat encountered, but no kidney was felt. On further exploring with finger, kidney was reached high up, its lower pole about on level with 12th rib and freely moveable. The kidney was delivered out of wound into gauze pads, when it was found to be congested, bluish in color and evidently under great tension, and enlarged about 25 per cent. The capsule and kidney parenchyma were incised when capsule retracted, with kidney tissue proper bulging out of wound. A probe was passed. No stone was found, nor was there a kinked ureter, or valve formation due to adhesions. Hemorrhage was free.

The capsule was then stripped back from edge of incision and parallel to it for its entire length. Catgut sutures were used to unite the kidney tissue. The kidney was then dropped back into place and held somewhat higher than normal while the capsule that had been stripped back was used as a sling and united with continuous sutures to fascia. Muscular layers and fat were united by continuous catgut sutures, and the skin with silkworm gut. A rubber tube and strips of gauze for drainage were inserted into wound down to kidney and wound dressed as usual. Patient was put to bed and during night nearly died from exhaustion. Normal salt was freely used by injecting under each breast and strychnine hypodermically. Dressings were saturated with serum and removed at end of four days, but no leaking of urine. Drain was removed at end of week. Stitch abscess gave trouble for a few days, but on omitting gauze drain and swabbing sinus with 1-2 strength Tr. Iodine it healed. Patient was removed to her home July 8th, eighteen days after operation.

Subsequent History. Patient is now, fourteen months after operation, in perfect health; appetite is good; she is able to do all her housework, washing, etc.; voids about 3 to 3½ pints of urine in 24 hours, whereas in 1902, before operation, about 10 to 12 ounces in 48 hours. She now weighs 140 pounds, while on admission to hospital her weight was 91 pounds.

Permeability of Rubber Drainage Tubing to X-Ray.

Joseph F. Smith: The following investigation was carried out at the suggestion of the late Professor Christian Fenger, and is based

upon a case which occurred in his service at the Presbyterian Hospital in the latter part of the year 1900.

Miss C., aged 29, was admitted to the hospital suffering from an extensive tubercular abscess in the region of the right iliac synchondrosis, which had previously been opened and drained without improvement. The patient was anesthetized and through an extensive incision part of the right ilium was resected, and an extensive tubercular abscess found in the right iliac fossa. From the abscess two sinuses were discovered, one leading upward along the psoas muscle toward the upper lumbar vertebrae, and the other leading downward into the cavity of the pelvis. These sinuses were isolated and explored as far as possible, and drained by means of No. 8 Nelaton catheters, one being placed in the upper sinus to a depth of eight or ten inches, and the otner to an equal depth in the lower sinus. Both were brought out through the external incision at the same point, and secured by fastening with safety pins, and a large absorbent and protective dressing applied. A few days later, when dressing the patient, it was discovered that one of the catheter drains had disappeared from the wound, the other being still in place. Careful search failed to reveal the presence of the drain in the dressings, and the special nurse in charge of the patient, upon being carefully questioned, declared positively that the tube had not fallen out during any of the dressings. The conclusion that the tube must have slipped into the wound and been lost in the abdominal cavity or in the cavity of the pelvis seemed most probable. After going over the facts carefully, Professor Fenger decided to reopen the wound and make careful search for the missing drain, and accordingly ordered the patient prepared for operation. On the day set for the operation it was decided to take an X-Ray picture through the region in which the rubber drain had been placed, to see if any shadow of the missing tubing could be obtained; although at that time it was not thought probable the rubber tubing would cast a shadow of sufficient density to enable it to be seen through the thickness of the body. However, a skiagraph was taken and contrary to expectations a very distinct and definite shadow of the upper tube was obtained. Since the drains were both exactly the same size and kind of material, both being No. 8 Nelaton catheters, it seemed a certainty that the second tube should also show if still present within the body. Skiagraphs were made of the entire abdomen, from the pelvis to the diaphragm, but no shadow of the second drainage tube was obtained. It was decided, therefore, that the tube must have slipped out and been lost in the dressings, notwithstanding the positive assertion of those in charge of the dressing of the patient to the contrary. The exploratory operation to search for the missing tube was abandoned, and the patient went on to an uneventful recovery.

The fact that the tube used for drainage in this particular instance produced such a distinct shadow with the X-Ray made it desirable to ascertain whether or not all of the kinds of rubber drainage tubing in common use produced shadows that enabled them to be distinguished through a considerable thickness of tissue, and if not all, what particular kind of drainage tubing produced the most distinct shadow. For this purpose samples of pure gum plain white, corrugated white, and maroon tubing of the same size and thickness were obtained. These with a No. 12 Nelaton catheter were arranged side by side upon a cardboard and a skiagraph taken through the thigh of a boy eight years of age. In this skiagraph it was seen that the red catheter rubber gives a very dense shadow; the plain white, corrugated white tubing, cast a distinct shadow, the maroon a somewhat less distinct shadow, while the pure gum tubing produces scarcely any shadow at all. Since various metallic compounds enter into the composition of rubber tubing, it becomes a matter of interest to compare equally thick layers of metallic compounds and their solutions. For this purpose paper boxes having a depth of one centimeter were dipped in melted paraffin to render them impermeable to solutions, and filled with finely pulverized salts of various metals, and also ⅛ gram molecule solutions of the same salts. These salts and solutions prepared by Professor Walter S. Haines and Dr. Frick were arranged in order upon a plate and exposed to the X-Ray. The negative shows that different metallic salts differ widely in their permeability to the X-Ray, and that this same difference extends also to their equivalent solutions. It appears also that the permeability depends upon the nature of the positive radical and varies inversely as the atomic weight of the metal forming the positive radical. This matter, however, requires further investigation with a large number of salts and careful tabulation of results before perfectly definite statements can be made. Although some work has been done along this line by Trowbridge and others, further investigation is necessary to clear up the matter definitely.

A comparison of the densities of the shadows cast by the salts and solutions shown in the skiagraph explains the variation in density of the various kinds of rubber drainage tubing. The bright red catheter and stomach tubing contained vermilion (mercuric sulphide), Hg S, and it will be seen from the skiagraph that the compounds of mercury cast very dense shadows. The maroon tubing contains vermilion (Hg S), or sulphide of antimony (Sb_2S_3), generally the latter. The white tubing contains salts of lead or zinc, chiefly lead oxide (Litharge, PbO), and these metals cause the tubing to cast quite distinct shadows, though not so heavy as the maroon and red tubing. The pure gum containing no metallic compounds, or only traces of them, cast a very faint shadow when shown through any considerable thickness of tissue.

The practical conclusion to be drawn from the facts above stated pertains to surgical work chiefly. In the drainage of cavities or long sinuses, there will be a distinct advantage in the use of rubber drainage tubing that produces a distinct shadow with the X-Ray, especially in cases where there is any danger of the drain slipping into and being lost in the

cavity or sinus. For diagnostic purposes also there is a certain practical bearing, because red rubber catheter, stomach tubes, etc., passed into passages of the body, as the esophagus, for example, show in the skiagraph the extent to which the passage is patulous.

A regular meeting was held Dec. 9, President R. B. Preble in the chair. The following papers were read:

Pregnancy Following Operation in Which Right Ovary was Removed, Left Ovary Resected, and Round Ligaments Shortened.

Anna M. Braunwarth: Mrs. E. P., age 27; height, five feet, two inches; weight, one hundred ten pounds, came complaining of pain in the abdomen since the birth of her child seven years ago.

Family history, negative.

Personal history: She had been much troubled with constipation since marriage. She had one normal labor seven years ago. Three days after the birth of child, she was out of bed. Since then she had suffered with pain in the abdomen, especially at the menstrual periods.

The patient said she was sick half the time, and suffered much with headache, backache and bearing down pains. She began to menstruate at the age of seventeen. She was always regular, until one and one-half years before, the flow lasting five days; since then it had lasted six and seven days. The amount was large. During the previous year, she had been passing clots at each menstruation, and had noticed a very disagreeable odor.

On examination, I found tender and painful ovaries, and a retroverted uterus. I decided that an operation was indicated.

The patient entered the Woman's Hospital February 15, 1902. The usual preparation was given, as reported in my article, in the "Woman's Medical Journal," October, 1902.

The operation took place February 17, 1902. The diagnosis then made, was retroversion of the uterus, and cystic degeneration of the ovaries. A small piece of healthy ovary the size of a pea, was left after I resected the left ovary. I removed the right ovary, which was completely diseased, and shortened the round ligaments intra-abdominally. Her recovery was uneventful. The wound was dressed the first time on the seventh day, when the stitches were removed. It was dry, and well healed.

The patient sat up on the fourteenth day, and left the hospital the twenty-fourth day.

During her recovery, the highest temperature was 99°, pulse 90, respiration 20. Before the patient sat up, I introduced an Albert Smith pessary, to be worn six months.

In September, seven months after the operation, the patient called me, because of persistent vomiting, for which she had been treated, without relief, by a neighborhood physician.

On examining the patient I found her pregnant. I removed the pessary, and the vomiting immediately ceased.

During her pregnancy, the only inconvenience she experienced, was from immense varicose veins on the lower extremities.

On the sixteenth of March, 1903, thirteen months after the abdominal section, I delivered her of a full term male child, which weighed eleven pounds. The labor, which was normal, lasted three hours.

On the thirteenth day after delivery, her temperature began to rise, and on the fifteenth day it was 104°. Examination showed retained secretions. After the uterus was dilated and curetted, the temperature fell, and the following day was normal.

The patient was kept in bed four weeks in order to insure perfect involution of the uterus, and to secure full benefit from the shortening of the round ligaments.

Since the delivery I have made a number of examinations, the last one having been made one week ago. Each time the uterus was found in the anteverted position. She is still nursing the child, and has not yet menstruated.

The literature on the subject reports pregnancy occurring after ovariotomy, and resection of the ovaries, but no mention of the shortening of the round ligaments is made, and furthermore, where a small portion of one ovary remains, it would seem necessary for pregnancy to occur soon after operation, before atrophy takes place, perhaps within six months or one year, according to the size and condition of the ovary left.

Summary:

1. Here is a case of cystic degeneration of the ovaries, and retroversion of uterus, one ovary resected, and the round ligaments shortened intra-abdominally.
2. Within four months after her recovery from the operation, she became pregnant, was delivered of a full term child, normal labor.
3. The vomiting of pregnancy ceased as soon as pessary was removed.
4. During her puerperium the temperature rose to 104°, due to retained secretions in the uterine cavity, and subsided after curetting.
5. The shortening of the round ligaments intra-abdominally, interfered in no way with carrying the child to term, or with delivery.

This case teaches us that resection of ovaries is not opposed to pregnancy, that cystic degeneration does not necessarily prevent normal ovulation and conception, and that a pessary retained as a uterine support, may prove to be an irritant, which will cause severe vomiting in pregnancy.

A paper entitled **The Theory of Squint** was read by Dr. A. B. Hale. The paper has not been received.

Discussion on Dr. Hale's Paper.

E. F. Snydacker: While on the whole I agree with the points which Dr. Hale brought out in his excellent paper, there are some things, I think, which will bear a little investigation. In the first place, the doctor says that blind eyes do not squint. As a matter of fact, blindness is one of the frequent causes of squint. When an eye is injured, when it becomes amblyopic, it usually becomes a squinting eye. The eye most commonly turns out, and often we have that class of patients to deal with.

With reference to operative procedures, in a subject as large as squint, where there is such

a manifold etiology, I think it is unwise to lay down and be guided by any particular rule. I think the rational way to treat squint by operative procedures is to individualize each case. Every case must be studied. The etiology of cases is different. Stelwag has shown conclusively that in a large proportion of cases of convergent strabismus there is actual contracture of the internal rectus. Here we are dealing with a short, thick internal rectus, perhaps with a flabby, weak externus. Tenotomy in such cases is indicated, in addition, to advancement of the externus. We should have but poor results in the larger degrees of divergent strabismus if we should merely advance, and not tenotomize. To say that we should never tenotomize would be to deprive ourselves of one of the most valuable operations in properly selected cases. The thing to do is to take each case and study it: correct the refraction; study the case under atropin, and determine the binocular field of fixation, the excursion of each eye, the strength of the muscles of each eye, and arrive at rational conclusions. But I do not believe in laying down a priori rules and saying what we shall do, or that one operation is better than the other. Each operation must be used properly, and cases must be individualized.

Willis O. Nance: I congratulate the essayist on the practicability of his paper and on having presented it before this Society.

I thoroughly agree with him, as it was the teaching of Priestly Smith, who gave the subject a great deal of study, that the rational treatment of strabismus is early treatment. That point cannot be too thoroughly impressed upon the minds of the members of the profession as a whole and the laity as well. Personally, I regard the correction of refractive errors in children as a most important adjuact in the treatment of strabismus. This is a point that is overlooked to a great extent. There are men in Chicago who are treating these cases without making any effort at correcting refractive errors, entirely by surgical means.

Regarding tenotomy versus advancement, I agree with Dr. Snydacker. We cannot say that we must do an advancement and not a tenotomy in these cases, nor vice versa, because some of them will require the one, some the other, and some, both. Some of them can be entirely corrected by the non-operative methods alone. An advancement without a tenotomy in a great many cases is entirely wrong. I recall a recent case which was referred to me by Dr. E. A. Lyon, in which I am satisfied advancement without tenotomy would have been absolutely valueless, or nearly so. The non-operative treatment of strabismus is an all-important one, which consists of the use of a cycloplegic, a thorough search as to the refractive condition, and fully correcting it under atropin; correcting all astigmatism, as well as hyperopia or myopia, as the case may be; the use of the occlusion pad, and the stereoscopic exercises to which Dr. Hale has directed special attention.

In a paper read before the Illinois State Medical Society last year, I made the statement that I believe the thorough correction of the refractive error was not less important than a thorough knowledge and technique of operative procedures, and I fully believe it now.

Nils E. Remmen: I agree with the last two speakers (Dr. Snydacker and Dr. Nance) as to the different operations. Professor Grut, of Copenhagen, who is an eminent authority, uses these operations according to the indications presented in individual cases. He most frequently uses tenotomy for convergent strabismus, and advancement for divergent strabismus. I have followed his system since I began to do eye work, and I have seen no good reason to discontinue that practice. As Dr. Snydacker has said, the cases should be selected and studied carefully, and refractive errors should be corrected. The sooner the refractive errors are corrected the better.

Some oculists have laid great stress on amblyopia from non-use. As a matter of fact, there are many good authorities who deny any such thing. We know that a child may be born with a cataract, live to be sixty years of age, and then be operated upon for its removal, and immediately have good sight. There is a case of non-use. My experience is that when we have an amblyopic eye, as shown here, if the patient's vision is very much reduced, the correction of the refraction is not going to re-establish it to any great extent.

Walter M. Fitch: I would like to ask two questions. First, at how early an age is it supposed the function of fusion is established? Second, at how early an age can modern ophthalmologists successfully correct refractive errors?

Dr. Hale (closing the discussion): This is not the Chicago Ophthalmological Society, so I shall not discuss technical points. Of course, it would be wrong to say that advancement is the only operation, as I think my two cases show very well. In one selected case I did a simple tenotomy; in the other, a selected case, I did an advancement. I think modern operators have accepted the advancement operation as being more rational in its details than simple tenotomy. The correction of the refraction is the only essential, and in many cases will restore binocular vision, giving to each eye its proper visual power. All other means of treatment are important, but not essential. You can try all methods of restoring stereoscopic vision or fusion, by advancement or tenotomy, but if the refractive error is not considered there is failure in the treatment. That is a very proper addition to the statement I made, that even all eye doctors are not quite as conscientious in their treatment of squint as they might be.

As to the question at what period the fusion faculty is established, most oculists think up to the sixth year. Beyond that it is much harder to establish if it has been lost, and it becomes progressively harder to re-establish after it has been greatly depressed. Some enthusiasts in regard to amblyopia evanopsia claim that the fusion faculty once lost can not be re-established. I question that very much. Some enthusiasts go so far as to put glasses on babies when nursing. I have not had any

nursing babies that needed glasses, but I can readily understand there might be such, and if I ran across them I might put glasses on, but I have not seen the need of putting glasses on children under four, perhaps when they are beginning to read or study, and at which age the near point is much more exercised than it is in babyhood.

Home Treatment of Suppurative Ear Diseases.

Joseph C. Beck: The object of this paper is not to repeat all that can be found in the text-books or other literature on the subject, nor to go into the minutiae concerning the treatment of suppurative ear diseases, but simply to dwell on the most practical and important points, so far as the general practitioner is concerned. I want to be distinctly understood at the outset that it is not my motive to take the treatment which belongs to the physician and give it into the hands of the patient, but to teach the patient a proper method that he may assist the physician to obtain a better result than heretofore. It is accepted that two-thirds of the cases of running ears affect the poorer classes of people, and that most of these are clinically treated. It is also established that running ears, particularly those that the general practitioner sees first, the acute cases, should have daily treatment at first. This procedure is rarely carried out, for various reasons. In the first place, a busy practitioner has not and does not take the time to attend to the case daily. Secondly, people are not willing to go to the doctor's office every day, as they usually put it, just to have the ear cleansed, and, lastly, if they are clinical patients, who would usually be willing to have their ears attended to every day, cannot, because most of the clinicians only visit their clinics twice or thrice a week; consequently the treatment is not very satisfactory, and many a case goes on to the chronic stage, which could be healed up in the acute stage. It is therefore very desirable to have a method of treatment which can be partially intrusted in the hands of the patient.

In order to accomplish this, I have been using and experimenting with this method, that I find supplies these conditions very satisfactorily, and will now describe, or, rather, demonstrate, the same.

Before doing so, however, it will be necessary to make a simple classification of suppurative ear diseases, in order to show for which class this treatment is most suitable.

1. Acute otitis media, (a) serous discharge; (b) pus.

2. Chronic otitis media suppurativa, (a) with simple thickening of the whole lining membrane of the middle ear and the tympanic membrane; (b) with granulations, caries, and other complications, as antrum and mastoid involvement.

The treatment of suppurative ear disease is principally divided into, first, dry treatment; second, moist or wet treatment by means of syringes, or the combination of the two.

The majority of men believe that the dry treatment is the best, especially in the acute cases, and to those do I wish principally to call your attention. Permit me briefly to describe how a case of acute otitis media suppurativa is usually treated by the patient and often by the doctor. The patient, usually a child, complains of severe earache, and in order to relieve this various substances are used, for instillation into the ear, as hot sweet oil, milk and bread, camomile tea and other infectious substances, until there occurs a spontaneous rupture of the tympanic membrane. It is, of course, these substances that caused the infection of the serous exudate, which is usually not infected. Gradle has written a very profitable article concerning the treatment of this earache, and recommends the instillation of hot carbolic glycerine, from 5 to 12 per cent solution, and since its adoption many of the secondary infections have been averted or mitigated.

Is the discharge already established, then follows the cleansing of the ear by means of improper and unclean syringes, with either too great a force or not force enough; very frequently too often washed and again not enough. The ear is not dry, simply wiped off on the outside, so that there is a constant moisture in the ear. Sometimes various powders are given to blow into the ear, which combine with the secretion and form a hard crust, that prevents the free drainage. In many cases nothing is done, just wait until the child outgrows the affection, and it is often that these cases do heal up simply because less interference was offered, and less chance of secondary infection.

The proper method is as follows: To relieve the earache use hot carbolic glycerine, 5 to 12 per cent, five to ten drops, repeated every fifteen minutes, or hot irrigations, with antiseptic fluids, and if necessary, make an early paracentesis, nay, incision. Then use a gauze drain, by placing a strip of sterile, soft, narrow gauze into the external auditory canal as far as the perforation, and loosely pack clear to the outer opening of the ear. Seal up the ear with collodion externally, which prevents the drying up of the secretion on the gauze, and so facilitates drainage. The gauze is in the first few days very much saturated, often after three to five hours, and then it should be changed and the process repeated, so it happens that a case at times requires two or three dressings daily until the discharge diminishes or entirely stops, and the condition is cured. Of course, the removal of contributory causes, as local naso-pharyngeal affection and general conditions, are to be combined in the treatment.

An entirely different proposition is the treatment of cases of acute otitis media suppurativa that cannot come or be seen more than once or twice a week, as, for instance, in the clinic. Should not these cases also have the proper treatment? This question brings me to the important point of my paper. Politzer says, if we had a method whereby the ear could be kept dry in the acute stages, we could avoid many a chronic suppurative case, and mastoid involvement.

Larmojez expresses himself in the same manner and asserts that the constant moisture in the ear is responsible for granulation formation, and so prevents proper drainage.

Richards takes the pains to teach his pa-

tients, whom he intrusts with home treatment, the anatomy of the crooked course of the external auditory canal, so that they may treat it intelligently, since most of the people believe the ear canal direction is straight inwards, and backwards, while it is the opposite—forward, downward and inward.

The method of treatment that I pursue is as follows: Say that the case is one where spontaneous rupture has taken place, or where the ear drum has been incised, and the ear is filled with a muco-purulent secretion or pus, I wash out the canal thoroughly with some warm antiseptic solution, as a two per cent carbolic acid, saturated solution of boric acid, permanganate of potash 1-1000, bichloride of mercury 1-3000, or formalin ¼ per cent. Then I dry out thoroughly by means of the gauze strips, as follows; which is the same procedure as packing the ear finally. If the patient is a small child, then it requires two persons, one to hold its head in position and a second to treat; but in older children and in adults only another, and oftentimes the patient himself, may treat the ears with satisfaction.

The patient sits near a table, with his right or left arm, depending on the ear being treated, on the table, the head resting on the arm, the forearm placed over the head, and holding the ear up and back, flat against the head. The ear having been syringed out, as said above, is now dried by means of these gauze strips, which are sterile, contained in this glass tube (Fig. 1.) especially constructed for this purpose, having a little beak at the top which acts as a retractor for the tragus, and also for the probe to get hold of the gauze. The gauze is prevented from falling back in the tube by means of this small rubber band. The probe is made of whalebone, somewhat flexible at the lower end, so

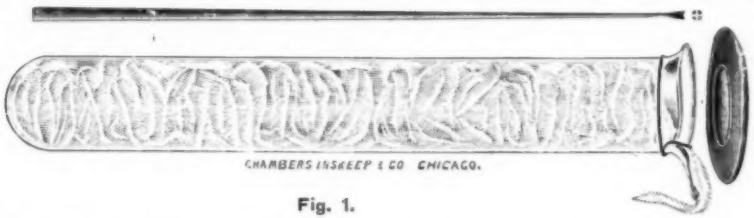

Fig. 1.

that it can follow the curved external auditory canal very easily, and glide by any obstruction offered to it; also will bend when it reaches the region of the tympanic membrane. The depth of the canal is indicated by a line, transverse, on the probe. The end of the probe has two or three furrows, as devised by Dr. , so that it may get a good hold of the gauze, and enable us to push it ahead easily and not pull it back on withdrawal.

The above mentioned beak of the tube is now placed into the canal in the region of the tragus, and the tube passes downwards and forwards over the cheek, held with one hand, retracting the tragus, and with the other hand the probe catches the gauze, and with one easy stroke it is passed to the bottom of the ear, indicated by the aforesaid line on the probe. Then a second fold is pushed gently down on top of the first, and a third, etc., etc., until the canal is completely packed, and cut off with properly sterilized scissors. The patient can be instructed to seal up with collodion, if desired. Some of my patients have carried out this treatment with a great deal of satisfaction. If, as usually the case, the discharge is marked and the gauze saturated, the patient is told to remove it and repack in the same manner on the same day. It is needless to say that attention has been called to the proper cleansing of the hands at each dressing. After two or three weeks of this kind of treatment we can expect that the discharge has ceased, and the ear practically cured.

Let us take a case of chronic suppurative ear disease where the whole lining of the middle ear and the tympanic membrane is thickened or granular. We will, for the first two or three weeks, irrigate the ear once or twice daily with antiseptic solution, drying and packing in the same manner, and when the patient comes to the office or clinic, wash out the middle ear by means of the Weber-Liehl catheter or Blake's, Hartmann's, or Dickerman's canula; inflate and use astringents. After three weeks, or when the discharge is much reduced, stop irrigation and only pack the ear with gauze, as in the acute cases, and you will find that many such cases get well, whereas the constant washing often keeps up the discharge.

In chronic suppurative cases where marked granulations are present, thick malodorous pus, with evidences by means of a probe of necrosed bone, and where the washings, sedimented and microscopically examined, show bone dust and cholesteatoma cells, we cannot expect any good results from this or any other but surgical treatment, and still these cases do better by the aid of gauze drainage, associated with frequent washing of the attic, than simply using occasionally a washing of the ear.

My conclusions are the following:

1. That most individuals afflicted with suppurative ear diseases belong to the poorer (clinically treated) classes.

2. That two or three times a week treatment by the physician is not satisfactory, especially in acute cases.

3. That the constant moisture in the middle ear and external ear leads to granulation formation, decomposition, and necrosis.

4. That by means of intelligently instructed patients the treatment of suppurative ears can be markedly improved upon and better results obtained.

5. Patients and their immediate friends are easily instructed.

6. That by means of this specially contrived tube gauze, and probe, the patient may be safely intrusted with the treatment, since infection and injury are not liable to follow.

7. Without the aid of a head mirror, ear speculum, etc., one can pack the ear very easily in that way, and makes a very convenient appliance also in the office practice.

E. F. Snydacker: I would like to ask the essayist if, after applying this little beak to the tragus, where the tragus has been bathed in pus, there is any means of cleansing the beak before the next wad goes over it, or does the next packing go over the beak without any further cleansing?

Dr. Beck (closing the discussion): In reference to the remarks made by Dr. Snydacker, I stated in my paper that the patient is instructed in regard to the importance of cleanliness. He washes his hands and naturally every part of the tube; at each time the tube is bathed with pus, it is washed off with alcohol.

In reference to the remarks made by Dr. Holinger as to the first point, that gauze was not the proper thing to use in the treatment of acute ear diseases, I know from his own statements that he uses gauze very often in these cases, because he told me so last night. Again, the great majority of otologists use gauze in the treatment of acute cases, and why not the general practitioner if the patient is properly instructed? We do not see any more favorable results from the use of boric acid washes in clinical cases than from the treatment I have mentioned. I am speaking of the treatment of these cases from the standpoint of a clinician. If it were possible for me to see these patients every day, I would not give them such a contrivance to use. But I have studied this matter from a clinical standpoint, and clinicians do not see their cases every day, and there is no one at the clinic usually who will attend to them. At least, that has been my experience. I am satisfied, since I have been using this gauze treatment and this tube, my results have been better. I do not believe the average general practitioner pokes gauze into the ear, particularly if he is told to do the packing gently. It does not require a specialist to pass a strip of gauze into the ear. These cases are chronic because they have been washed improperly either by the general practitioner or the patient himself. Dirty syringes have been used perhaps, and a lot of water has been left in the ear.

As to the remarks of Dr. Holinger, regarding drainage, and the ear draining itself on the pillow, I have to say that the ear is one of the poorest cavities to drain. Anyone who is familiar with the anatomy of the ear knows that there is always more or less retention of foreign material in the ear. Gauze is used for the purpose of capillary drainage. We do not pack the ear when we use gauze as a drain.

With reference to the case Dr. Holinger spoke of, which was presented to the Chicago Laryngological Society, I saw the case. It was a chronic case, with acute exacerbations. In this case the handle of the hammer was short, and we found it was partially destroyed, retracted, and adherent to the inner wall of the middle ear. There were distinct remnants of the tympanic membrane. The handle was drawn inwards and apparently adherent to the promontory of cochlea. There is no gauze or cotton which would cause destruction of that kind. It was a chronic case, with adhesion of the short process and handle of the hammer to the inner wall of the middle ear. I am speaking about gauze packing, as I would not think of packing cotton in the ear.

Some Observations of Practical Interest on Colonic Lavage.

Milton H. Mack: The uses of this important therapeutic measure have been not only overlooked, but neglected to a certain extent by the profession in general.

The reasons for this are three in number:

1st. The objection on the part of the patient.

2d. The objection on the part of the physician.

3d. The want of facilities for the proper administration.

All of these play an important role.

In the first the patient objects to the trouble in taking it, if done at home, and to the exposure, especially if the patient is a woman, if it is given by the physician. The exposure should not be considered under any circumstances as there is in reality practically none.

In the second, it must be admitted that the physician experiences some disagreeable features in the giving of colonic lavage, aside from the time occupied in administration, which is from 15 to 25 minutes not including the time necessary for preparation.

The third is probably the most important of all, as it is an almost absolute necessity to have certain facilities for its proper administration. If taken at home by the patient, we have no assurances that the patient is following accurately our direction. If given at home by the physician he is handicapped by the want of the necessary conveniences.

Furthermore, it is positively impractical to give it in the office, unless a room is especially provided for the work.

Colonic lavage, as its name indicates, is a washing out of the colon. It may, also, be the means of making local applications of medicines. A number of different tubes are used for this work, but my preference is the ordinary flexible rubber Colon tube for with this it can be passed to almost any portion of the large bowel.

The technique is simple. One of the three important positions are utilized at the discretion of the operator.

Boas advocates the placing of the patient on the side with the hips elevated.

Others use with good success, in certain condition, the Knee Chest position. Both of these I have tried and found unsatisfactory for practical routine work.

For my own use I prefer the dorsal position in nearly all cases. I find it the best.

The patient should be placed upon a table especially prepared for elevating the hips.

The body lies on the back with the hips elevated at an angle approximately of 45° or 50°.

The stirrups in which the feet rest are also raised with the end of the table, thereby giving the patient as comfortable a position as possible.

The colon tube is then passed into the bowel. It is not necessary that it should enter more than a few inches.

Many physicians claim that it is necessary for the tube to pass the Sigmoid to get good results. I have demonstrated to my own satisfaction, that this is not so.

It is possible to locate the water in the ascending Colon when the tube is placed just inside the sphincter. I have experimented many times in this, and seldom failed to find it as stated.

The water which has been previously prepared is now allowed to flow into the bowel.

The temperature of the water varies with the case. It may range from ice water to a temperature of 130° F. Hotter than this it is not well to use in the bowel. Hot and cold water may also be used alternately.

The amount of water allowed to flow into the bowel depends upon the temperature. At an ordinary temperature any where from a quart to 3 or 4 quarts can be passed in, but large amounts in most cases are unnecessary.

The giving of lavage, with water at a high temperature, say from 120° to 130° calls for an entirely different procedure, as the patient is unable to retain a large amount.

After the tube has been placed in the bowel, the nozzle of the irrigator is attached and from 8 to 10 or 12 ounces allowed to pass in. Rarely, is a patient able to retain more than this, without pain.

Then the nozzle is disconnected and the water allowed to siphon out. This procedure is repeated any number of times over a duration of 10 to 25 minutes. The patient is generally the best judge of the amount of water to let in, at any one time, but should you for any reason desire more, let the patient breathe deeply or otherwise it may get beyond his control and suddenly return along side the tube.

Some authors advise the use of hot and cold water alternately. I personally prefer the continued use of the hot water in nearly all cases, especially chronic catarrhal and atonic conditions.

If necessary the treatment can end by douching the bowel with cold water. This acts as a stimulant to the patient if the heart shows any signs of weakness.

As it is out of the question to have the patient personally use the method just described, it may be necessary to occasionally resort to the other methods. However I do not like them in chronic cases for the following reasons:

1st. The bowel is stimulated by the weight and bulk of water present and not as in the latter method, by the heat.

2d. The temperature of the water is necessarily much lower, as it is almost impossible to inject a large quantity at a high degree, and as a result the stimulation is not so marked.

3d. The amount of water generally used has a tendency to over distend the bowel and if continued for any length of time is liable to cause a paretic condition of the bowel.

4th. Probably the most serious objection is that when large enemas are once begun, the bowel soon depends upon them, which is not the case with small hot injections often repeated.

For cleansing the bowel on one or two occasions the large enemas are suitable and no objections can be offered to their use.

However, Blake in his work on Constipation says that a large injection should never be given, if any great amount of fecal material remains in the bowel, on account of the danger of absorption.

I have never experienced any difficulty from this source in any of my work. He also states that a small injection be given first, then gradually increased until a large amount can be given. I cannot help condemning this statement. For while there is no denying the fact that temporary good does result, in certain cases from large injections, they should never be continued over any considerable length of time, owing to the future deleterious effects.

Local Effect: The local effect of an injection depends upon the temperature of the water. A moderate temperature 65° to 80° F. will cause a relaxed condition of the wall. A cold injection causes stimulation, but is also liable to cause pain.

A temperature from 80° to 110° F. will cause a mild stimulation with slight hyperaemia. From 110° to 130° F. there is

1st. Considerable hyperaemia of the mucous membrane.

2d. An increase in the secretions.

3. It has a markedly stimulating effect on the bowel itself. Anything over 120° F. causes a more or less tetanic condition, which give a sensation of griping or intense desire for stool.

These spasmodic contractions are so violent as to cause a very perceptible motion of the tube, an intermittent return flow, and often will pocket the water not allowing any return at all for some time.

General Effect: The ordinary large warm injection has little or no general effect other than the sensation of the bowel movement or under certain circumstances may cause a slight general weakness following the movement. But when the high temperature, from 120° to 130° F. is used, the first effect is usually noticable in the feet, it being a sense of warmth and tingling following this it is in the hands and then the whole body.

As a rule, the patient perspires very freely before the end of the treatment.

The pulse will increase in frequency from 5 to 30 beats per minute, but the volume and rythm, so far as I can observe, are not changed. Occasionally the patient after the treatment will feel weak and exhausted, finding it necessary to lie down for a few minutes, but aside from this, I have never noticed any deleterious effect.

This can be prevented by finishing the treatment with a cold injection.

Indications:

Constipation. The most common indication for lavage is that of constipation. The treatment of constipation by lavage differs according to the Etiology. If the condition be one, only of physiologic changes due to atonic conditions, the best results are obtained by the use of small quantities of water, oft repeated, at a very high temperature. This has a tendency to stimulate peristalsis without increasing the atonic condition by over distention from the weight of water.

This is also true of those cases of constipation, due to catarrhal conditions of the bowel, as colitis or entero-colitis. In these cases the action is two fold, viz.: the stimulating effect upon the bowel and the application of heat direct to the diseased surfaces, thereby causing a decrease in the inflammatory condition of the bowel.

I have invariably utilized this treatment in all cases of constipation resulting from such diseases of the stomach as gastritis, dilatation and Hyperchlorhydra, etc. It is especially valuable in these cases. Of course the fecal matter in constipation resulting from impaction stricture and the like will be removed quicker by larger amounts of water at a much lower temperature. In 31 cases of constipation treated, due to atonic and catarrhal conditions, I can report cures to 24 cases. Improvement in 5. No relief in 2.

In three of these cases I found it necessary to use cathartic and then only for a short time. In cases of mucous colitis I am able to report good results, but feel the treatment must be continued at intervals for some time before permanent results are obtained.

Diarrhoea: The next condition is that of diarrhoea. Lavage gives better results in those cases which are due to the diseases of the colon, rather than the small bowel. It may be used in either the acute or chronic forms of diarrhoea. It is especially useful in stercoral diarrhoea, that form in which diarrhoea exists with constipation.

In diarrhoea due to tubercular conditions much aid can be given the patient.

I have seen two cases which made such an improvement that I would like to make a short report of them.

The first, that of a young man, 24 years of age, had from 5 to 8 stools daily, was sent west, and after six months in Arizona returned in about the same condition.

Lavage of the colon was instituted for several weeks, when the stools dropped to one or two daily. The patient gained in weight and strength and made a general improvement. Tubercle Bacilli was present in the feces. As this was only a few months ago, I am not prepared to say what the outcome will be.

The second case, also a young man, aged 20 years, was under my care for only a few weeks, when the family suddenly decided to have an operation done for chronic catarrhal appendicitis. Operated against my advice.

Appendix removed and found normal. The patient rapidly lost ground and died just a few days ago from intestinal tuberculosis.

While under my care gained in weight, strength and appetite. Stools dropped from 4 and 5 to 1 and 2 per day. Looked better and felt better in every way, but gain was not fast enough to suit family.

There is one other important point which must not be overlooked along this line, and that is the help we may obtain from this measure in the diarrhoea of children. In case of cholera infantum and acute dyspeptic diarrhoea, it is not uncommon to see a very perceptible drop in temperature follow one or two flushings of the bowel in these conditions.

Dysentery: Attacks of acute catarrhal dysentery are not shortened perceptibly by the use of lavage. I have tried it in these cases, both with the water at high and low temperature. In Amoebic dysentery, injections of quinine 1-2000 or more are much vaunted, and I think, considering the results obtained, properly so.

In the chronic dysenteric conditions much good can be accomplished. Here again I like to use the high temperature, with repeated injections of small amounts. These injections can also be made the medium of local medicinal applications, such as argentum nitrate, alum, boracic acid and other astringents.

But these cases should be taken only with the understanding that to get the results treatment must extend over at the least consideration four to six weeks. If the patient is willing to do this, it is possible to extend the hope of recovery.

Typhoid Fever: Just before giving up my general work, I tried treating two cases of typhoid fever by daily irrigations of the colon, with only a small amount of salol by mouth. As I have had no opportunity to follow this up, I am unable to draw any deductions, therefore, but of the two cases stated I will make the following reports:

Case 1. Lavage badly borne after third day had to cease entirely after seven days, but temperature raised from one to two degrees after irrigations ceased. Patient made a good recovery.

In the 2d case irrigations continued 12 days. Fever only twice above 103°. No discomfort from enemas. Slight delirium only three times during attack. Uninterrupted recovery.

Water used was never above 100° or 105° F., causing little or no tetanic contraction, a small amount only being allowed in the bowel at any one time. This, I think, is rational therapy, as it keeps the colon clean.

Hepatic Atrophy: In that form of chronic hepatic atrophy due to insufficient nutrition as a result of stomach or intestinal trouble, I find excellent results from lavage of a high temperature. This condition is much more prevalent than is supposed. I find it in about 70 or 75 per cent of all cases of gastric (intestinal) disturbances. While I have never been able to see a complete restoration in size in these cases, I have been able to make out an increase and also to give my patient considerable relief. This cannot be accomplished in a few treatments, but takes several weeks.

In cases of sigmoiditis, proctitis and peri-

proctitis best results are obtainable by the high temperature injections.

Headache due to gastro intestinal disorders: Headache also claims attention, and I have attained excellent results in several cases of so-called sick headache due to gastro intestinal absorption, of toxic substances. Two of these cases had suffered from headaches for years, one for 18 years and the other for about 10 years. The attacks would last from 12 to 36 hours, occurring every week or so.

One case dismissed eighteen months ago and the other thirteen months ago with no return. Whenever these cases present themselves to the practitioner it is well to determine if they are of gastro intestinal origin, as so many of them are, and treat them accordingly, with lavage. Neurasthenic headaches do not as a rule give good results from lavage. In diseases aside from those found in the digestive tract—colonic lavage is also useful.

Kidney Lesions: My attention was called to the effect of lavage on the kidneys in one of the first cases I ever treated by lavage, from the fact that in two or three treatments the urine was changed from a foul smelling article, with large deposits, when allowed to stand, to a practically clear normal condition. There was also an excess of phosphates, which soon disappeared. Soon after this I had an opportunity to treat a case of temporary albuminuria (2d attack) in which oedema of the eyelids and feet was present. Nitric acid showed about 70 per cent per volume of albumen. Albumen disappeared after 3d treatment, with lavage at a high temperature. In cases of chronic nephritis I would advise the use of a higher temperature than is ordinarily used in these cases. I think quicker and better results can be obtained, for the renal activity is much more marked.

If suppression has taken place, the kidneys can be aided greatly, not only by the local effect of the heat on the kidney, but by the diaphoresis following the administration.

Nervous Disorders: Under the head of nervous disorders, I wish to mention that Dr. Moyer, of this city, reports three cases of insanity proceeding from the colon relieved by flushing of the bowel. I myself have only seen one case of this kind, and that during my service as hospital chief. These cases were treated by large enemas until the entire fecal mass was removed, when the patients began a rapid improvement and made an uninterrupted recovery.

In conclusion, I find that about 85 per cent of chronic cases give best results from the high temperature injection, while a far less per centage of acute cases are adaptable to this mode of treatment.

Discussion.

Homer M. Thomas: I do not desire to speak on the subject of colonic lavage from the standpoint of either a specialist or as one who has had much experience in diseases of the colon. I was recently the attending physician in a case of colitis and perityphlitis. The condition was an aggravated one and the necessity of operative interference was raised. A distinguished surgeon was summoned in consultation and suggested that relief of the mechanically distended colon and reduction of the abdominal distension might be secured through colonic lavage. It was suggested that the colon might be thoroughly cleansed of its decomposing contents by the use of colonic lavage, consisting of equal parts of common molasses and milk, heated to a temperature of 100°. I was somewhat surprised at the therapeutic suggestion which the use of this mixture caused, and received it with considerable skepticism. I asked the surgeon, probably the most distinguished in the northwest, as to what the therapeutic action was of a mixture of equal parts of ordinary molasses and milk administered as a colonic lavage, upon a condition such as was presented in this case of colitis and perityphlitis. He most frankly admitted that he did not know how this mixture acted, but that it did, in nearly every similar condition, act effectively in cleansing the colon of its diseased products. He also stated that it was a treatment most successfully used in such cases by Sir Andrew Clarke, a distinguished surgeon of London, and that in his hands it had almost invariably afforded relief in cases of mechanical distension of the colon. It has been experimentally demonstrated that the capacity of the colon to retain a medicinal mixture for purposes of lavage is three pints. I applied this treatment by means of a mechanical pump, and the effect was entirely successful, as well as gratifying. A large accumulation of dried feces and highly decomposed gaseous flatus, was removed. I was not successful in having the full capacity of the colon, three pints, retained, but probably a pint and a half of the mixture was retained for about five minutes. During the course of the illness of this case, colonic lavage was instituted five times with the desirable result that the symptoms of colitis and perityphlitis entirely disappeared. The result was extremely gratifying in every way, and the necessity for operative procedure was obviated. The case referred to was that of a distinguished titled foreigner, and attracted some considerable medical as well as public interest, at the time. I feel quite confident that had not colonic lavage been instituted in this case and the before mentioned mixture used, that in all probability an operation would have been necessary to effect a cure. The avoidance of an operation in this case through the efficacy of the treatment instituted, namely, colonic lavage, I feel is distinctly more of a medical triumph than had recovery been brought about through the necessity of an operation. I wish, therefore, to record my pleasant impression of the efficacy of colonic lavage in a recent case of a severe attack of colitis and catarrhal appendicitis.

J. Rawson Pennington: As has been stated, the use of water, hot or cold, in the bowel is not new; neither is the technique, as presented to us this evening by the essayist. Yet, I am sure that its thrapeutic value is not appreciated by the average doctor, and therefore I consider the paper a timely and valuable one.

Colonic lavage, when indicated and properly administered, especially, in combination with kneading massage, may be productive of great

and lasting good. But, mark you, when not indicated and improperly administered, may be productive of great and lasting harm.

I use, in my practice the same technique as that advocated by the essayist, with this exception, I flex the thighs on the abdomen, the legs on the thighs and support them by leg rests; then introduce into the bowel myself retaining rectal tube. You see (exhibiting the tube) it has a bulbous enlargement near the distal end, and when this enlargement is passed through the levator and zone it prevents the tube slipping out, an advantage appreciated by those giving colonic lavage.

A word or two in regard to the treatment of constipation by this method. The essayist reported 29 cases, and of this number 21 recovered and four were improved. This is a good record. Constipation, however, is not a disease but a symptom and the disease causing the constipation must be determined before the prognosis can be thought of. Constipation is no more a disease than pain, or fever is a disease, and who would think of treating all cases of pain with opiates, or all cases of fever with quinine? Neither should you expect to remove the cause of all cases of constipation by injections of hot or cold water.

The essayist also mentioned cases of constipation due to catarrhal gastritis and dilation of the stomach, which he had successfully treated with colonic lavage. If I were treating a case of constipation due to catarrhal gastritis or dilation of the stomach, I would direct the treatment more especially to the stomach, would put the hot water in it using my intragastric bag, so that the water would not come in direct contact with the mucous membrane of the stomach. And I believe the essayist would do the same thing, as I am sure that this statement was an oversight on his part. In cases of dilation of the stomach, as it is a muscular organ, I would employ intragastric massage by means of hot air. Here, again, it would be necessary to employ the intragastric bag and, I would use again preferably, my own, because it is so constructed that the stomach tube and bag always maintain a definite relation to each other whether the bag is empty or distended.

Dr. Mack (closing the discussion): In regard to the cases referred to by Dr. Moyer, I remember very well one case when I was an interne at the hospital, which reacted, as he says, to this treatment. It is the only case with which I am familiar, where colonic lavage relieved the mental aberration.

This treatment is not a panacea for all ills. In the paper I considered only three different diseases aside from those due to conditions of the alimentary tract.

I did not mention massage, but I should have mentioned it as one of the important adjuncts in the treatment of these conditions. It should be used in every case and I do use it.

A question was asked as regards the method of introducing the water into the bowel. I thought my description of that was clear. It is simply one of gravity, and water can easily get into the bowel.

I did not say constipation was a disease. I realize the importance of not calling it a disease as well as anyone else, but it is a symptom of a great many diseases, and if you relieve the disease you relieve the constipation. Furthermore, I stated the cases which I had treated were due to atonic conditions of the bowel, and inflammatory conditions of the bowel, as mucous colitis, and enterocolitis. I do not pretend to relieve conditions that are due to malpositions of the bowel or strictures or anything of that kind. You cannot do it with colonic lavage, nor with anything outside of surgery.

In regard to constipation being associated with diseases of the stomach, I certainly would direct my treatment towards the stomach in catarrhal gastritis or dilation. But when you have an irritated colon, one that is diseased, accompanied with dilation of the stomach, or gastritis, it is wisdom to direct a certain amount of your treatment to the colon, and I know that I get good results in these cases by so doing.

A word or two in regard to the time consumed in giving colonic lavage. You can take as much time in these cases as you desire, but my experience has been in treating a good many of these cases, that the time required is not over fifteen to twenty or twenty-five minutes at the outside. I see no necessity of putting in forty-five minutes or an hour in the use of colonic lavage when it is not required.

It is true, this treatment is not new, but there are some things which we should consider occasionally even if they are old. But, as Dr. Montezuma has said, physicians should educate themselves to give lavage properly.

Report of a Case of Perforating Gastric Ulcer In a Male Aged 54, with Presentation of Specimen.

James B. Herrick: This is a specimen of ulcer of the stomach obtained from a man aged 54, whom I first saw about the middle of last July. The history of the preceding years was an uneventful one except that ten years before he had suffered for several weeks from pain that he attributed to sour stomach with acid eructations. In June of 1902 he again suffered from the same trouble for sometime, and in July of this year he was taken with the same illness. This time the trouble did not disappear, however, and in August his complaint was of severe pain coming on about three hours after eating. He described the pain as being a burning and gnawing; sometimes there were acid eructations. He found that frequently he could relieve the trouble by drinking milk. Vomiting had occurred once or twice a week, he sometimes forcing himself to vomit in order to relieve the pain. He denied ever having vomited blood.

For various reasons no examination of the stomach contents was made at this time and the patient was put tentatively upon a treatment that would be suited for hyperchlorhydria: the periodic pain coming on after meals, the acid eructations, the relief afforded by milk making one think of hyperchlorhydria. This treatment gave him much relief for a week or more, but later his physician telephoned me that his patient had vomited blood and that the stool was tarry. The patient was then placed in my care in the hospital and was at

once put on rectal feeding. A test meal was given and the stomach tube, carefully passed, brought up stomach contents that fitted in with the diagnosis of ulcer; a large amount of hydrochloric acid was present.

The pain which the patient had suffered at his home following the hemorrhage, promptly disappeared under rectal feeding. The case went along beautifully until the fourth day when the patient had a sudden, severe pain in the epigastrium. The pulse jumped to 120; there was extreme tenderness in the epigastrium; the muscles were rigid, and the leucocytes, which had been counted only four hours before, increased from 6,000 to 12,700. Perforation of the ulcer, was, of course, looked upon as having occurred. A surgeon was immediately summoned, the abdomen was opened and a tear through the ulcer on the anterior wall of the stomach close to the pylorus was sewed up. The patient died the next morning. The autopsy showed that the stitches did not hold well.

The autopsy was held within an hour after death. There was found an acute perforative peritonitis; numerous old adhesions between the lesser curvature of the stomach and the liver, and close to the pylorus a large ulcer 3½ by 7½ centimetres, with raised, indurated edges and a clean base of scar tissue throughout most of its extent. The ulcer rode on the lesser curvature of the stomach, saddle fashion, extending three-fourths of an inch over the anterior and posterior surfaces respectively.

There was no pyloric obstruction and the stomach was not enlarged. The other findings were of no interest from the point of view of the ulcer. There was no regional enlargement of the glands.

This case presents a few points of interest. In the first place, the patient was a male and was 54 years old. The conception we so frequently get of ulcer is that it is a disease almost peculiar to chlorotic girls; but many cases occur in males during adult life and even in old age. Then, there is another feature that is of frequent occurrence and that is the relapses. The extent of this ulcer and the large amount of scar tissue show that it is an old affection. To judge from the symptoms the trouble began ten years ago; then there was a period of dormancy; then it flared up again in 1902 and again in 1903. This is often seen in ulcer. I have seen it in several instances in adult males. I have now a man aged 49, under treatment whose history dates back four years and shows several relapses. In another case, a man of 70, the history of repeated attacks extended over many years. Finally at the age of 70 there was a perforation; at one time it seemed as though the case must be one of carcinoma, but the autopsy failed to show anything that could be called carcinoma, merely the ulcer with abundant old scartissue showing a process of long standing.

The size of this ulcer is worthy of note, being larger than most of them

Another point is the time of the occurence of the pain. We too often get the impression that in ulcer, pain should appear almost immediately upon taking food, but that is by no means the rule; there are many exceptions. In ulcers near the pylorus, where the musculature is in active contraction some time after taking the food, we find not infrequently that the pain is delayed for two or more hours after each meal. Then again, the taking of food really lessened the pain in this case. The taking of food dilutes the gastric juice and at the same time serves to neutralize the excess of acid. Particularly, giving to the patient a proteid diet gives great relief from pain, hyperchlorhydria being thus overcome.

The rarity of vomiting is also worthy of note.

Sections show more or less proliferation down into the muscularis with active karyiokinesis. Dr. LeCount who has examined the specimens is inclined to believe that this represents an ulcer in the transition stage towards carcinoma.

Chicago Laryngological and Climatological Association.

Regular meetings are held on the fourth Tuesday of each month from September to May.
Membership 50.

Officers.

President ..... Norval H. Pierce, 31 Washington st
Secretary ..... John Edwin Rhodes, 100 State st

A regular meeting was held November 24, 1903, with the president, Dr. Norval H. Pierce, in the chair.

Dr. John Edwin Rhodes reported a case of **Spastic Dysphonia.**

This term is applicable to any neurosis of the larynx which is characterized by difficulty in phonation. It is, so far as the larynx is concerned, a local condition, rather than a disease, the lesion for which it is a symptom, being one of the nervous system, and usually situated in the brain. It is a neurosis in which there is a spasm of the larynx, and a failure to properly co-ordinate its muscular action on attempts at phonation. In these cases, on an inspection of the larynx, we find a normal condition, so far as appearances are concerned while the respiratory function alone is taking place. However, as soon as the impulse to the muscles of phonation is sent along the efferent nerves, there is an immediate spasmodic action of the larynx apparent, the voice being broken in a characteristic manner, but, as soon as the attempt ceases, the normal action of the larynx in phonation, is resumed.

In 1898, in a paper read before the American Laryngological Association, on "Spasm of the tensors of the vocal cords," I gave the histories of five cases, observed by Dr. Ingals and myself. In only one of these cases was that classification so applicable as in one I have recently had an opportunity of studying carefully, and in that one the records were very meager. It is undoubtedly a rare affection, as McKenzie had seen but 13 cases, although Lennox Browne believed that it was found much more frequently, a statement with which most observers do not

agree. The case had some interesting features and it seemed worth while to place it on record.

C. A. H., single, 43 years of age, farmer, a resident of a neighboring state, was referred to me September 14, 1903, and gave me the following history:

His speech had been affected for 23 years, but had become worse in the last five years. Early in the history of the trouble there was an almost total loss of speech. The trouble seemed to begin rather suddenly as a cold with loss of voice. As this was not restored after a time, he and his friends became alarmed. At this time he consulted the late Dr. Jewell of this city who gave a very unfavorable prognosis, limiting his probable survival to a few years only. His family history shows the death of his mother from paralysis, following typhoid fever, at 73 years of age. He is of a nervous temperament, and has had several nervous breakdowns in the last few years. He is inclined to be morbid and constantly worries over his condition. He is weak and for the last year has had very little endurance. There is a considerable loss of weight, from 140 lbs., a few years ago and 125 lbs., two years ago his weight has declined to 119 lbs. He is rather anemic, having a pale, sallow complexion. His pulse is 72, and slightly unsteady. His temperature is, a part of the time, above normal, reaching 100.2° F. There is no cough, but some hacking and clearing of the throat. The appetite is good, but digestion is poor, and he complains of a "miserable feeling" in the bowels, pretty constantly. He is habitually constipated, and a constant user of cathartics.

On attempts at phonation there is at once a marked tremulousness of the voice. The words are broken and vibratory, more so at the very beginning of efforts to speak than when he has gotten well started, then the words are uttered more easily, some words having an even, clear tone, but most of them characterized by tremulousness, such use of the voice causes fatigue. He says that when he is excited or a little embarrassed, or tired the trouble is more marked. Any position of the head or change in pitch or force of the voice makes no perceptible difference. One marked characteristic is that the whisper voice is perfectly normal, and he can use it without fatigue for any length of time. He can sometimes read aloud easily for sometime without fatigue, or marked breaking of the voice. There has never been any dyspnoea. He has had nasal catarrh since childhood.

An examination shows a marked "chicken breasted" chest. The heart and lungs are normal, and liver and spleen are not palpable. There is a large opening in the cartilaginous septum, and the cavities are free. He thinks this perforation occurred in childhood, and was the result of catarrh. He denies having had syphilis and there are no evidences of such an infection. There are a few enlarged follicles on the pharynx, and some diseased crypts in the tonsils. The laryngeal structures show no evidences of inflammation. On attempts at phonation the abduction is not delayed, but on the attempt at verbal utterance the tremulousness of the cords is at once apparent. Tension is held for an instant only, when there seems to be relaxation allowing a fuller column of air to pass, throwing the vocal cords into vibration in their entire length. The arytenoids seemed fixed with no relaxation at all while this condition of tremulousness is observed. In the utterance of a single and prolonged note there seems to be an uneven escape of the air column, an intermitting tension and relaxation. This condition is not apparent when he whispers. There are no evidences of this tremulousness elsewhere. There is none of it about the head, neck, or extremities and it is not in evidence except when speaking. The reflexes are normal.

The thyro-arytenoids have been called the "internal tensors of the vocal cords." The motor stimulus is received through the recurrent laryngeal nerves. The muscular action at fault in this case seems confined to these muscles. The external, or real tensors of the vocal cords, the crico-thyroids, are not visibly affected in his phonatory efforts. His speaking voice, however, has impressed me as being modified by the muscles of expiration, particularly by the diaphragmatic control of the air column in expiration. Careful observation convinces me that the tremulousness accompanying the breaking of the voice is in the thyro-arytenoidei, chiefly, if not entirely, and that the case is such a one as McKenzie describes as a "spasm of the tensors of the vocal cords."

He was a masturbator from 14 years of age till 8 years ago, when, at his own solicitation, castration was performed, and the habit cured. This habit may have been an important factor in the etiology of the affection.

Discussion.

William L. Ballenger: I want to report in this connection a case which I saw about fifteen years ago, which was similar in some respects to the case reported by Dr. Rhodes, and in other respects dissimilar. The patient was a woman, 30 years of age, who had been attending the Sankey and Moody revival meetings at Indianapolis. She was one of the singers on the stage, and following this series of meetings and her extended efforts in the musical line, she developed spasm of the vocal cords quite similar to the case that has been described. The peculiarities in her case were that the spasms would occur only during attempts at singing, and later on, I found that even though she did not attempt to sing, but simply thought music to herself, it would bring on the spasms just the same as during actual attempts at singing. I diagnosticated the case at that time as one of Hyperkinosis of the larynx. I have often thought of it as an interesting case, and one which illustrates how the thought of music develops the spasms just as much as actual attempts at singing would do. She made a complete recovery in about six months.

E. Fletcher Ingals: These cases of spastic dysphonia are interesting, but unfortunately very unsatisfactory cases for the physician. I have seen a number, possibly six or seven. The author of the paper refers to five of my cases. I only recall at this moment two; they were both in ministers who were past middle life. They

had been under similar conditions of overwork; one went from bad to worse, the nervous symptoms increasing as the disease progressed. Later he had marked stammering making it difficult to utter many words. I do not know about the progress of the other case, but I hardly think there was any improvement.

The prognosis in these cases is essentially bad. I do not know of any cases that have been improved by treatment.

The disease is not frequent. From my own experience, I should say that it occurs in only one in six or eight hundred cases of laryngeal affections, perhaps one-eighth of one per cent.

Wm. L. Ballenger: I would like to say that the woman whose case I have reported voluntarily regained her voice in about six months, if I remember rightly, without any treatment having been given.

Norval H. Pierce: I think one of the cases referred to by Dr. Ingals was that of a prominent clergyman here. He went from bad to worse, until he had to give up his position in the church. The spasms, which apparently began in the intrinsic muscles, extended to the extrinsic muscles, so that the cricothyroideus muscles would contract, pull the thyroid violently downward, and thus put the cords upon a tremendous stretch, so that the most striking impression one would get on laryngoscopic examination would be the great length of the vocal cords. The omohyoid and the sternohyoid and thyroid muscles were involved. Later the diaphragm became spasmodic, so that he had to desist from speaking entirely on account of want of breath and from spasm of the diaphragm, causing urgent dyspnea. He does all of his speaking at present on pieces of paper. He is losing flesh rapidly, and all of the symptoms are growing worse. The heart is dilated on both sides, right and left, and his whole life is miserable.

The most peculiar feature in this case is this, that by the insufflation of fifty per cent of cocaine and sugar of milk into the nostril his voice returns; he is able to conduct service or preside at a meeting with the greatest facility, but the moment the cocaine wears off the spasms return.

John A. Robinson: During the reading of Dr. Rhodes' paper, the thought occurred to me that probably some of these cases might be due to intrathoracic disease. At the West Side Branch of the Chicago Medical Society the other evening, Dr. Preble exhibited a case of aneurysm of the aorta in which there was present almost the same spasmodic condition of the larynx as has been detailed in this case, in addition to attacks of spasmodic dyspnea. The dyspnea was very intense. In view of the fact that no real explanation seems to have been offered why these cases occur, may they not be due to an undiscoverable aneurysm, on account of the fact that the left recurrent laryngeal nerve enters the thorax, winds over the arch of the aorta, and is distributed to the laryngeal muscles, the intrinsic muscles particularly. That question constantly recurred to my mind while Dr. Rhodes was reading his paper.

Dr. Joseph C. Beck reported a case of **Lingua Nigra.**

This man, Mr. T., 34 years old, with a history of a muscular rheumatism for several years. Family history negative. Venereal history negative, so far as syphilis is concerned. History of childhood, usual diseases.

Present history: About a year ago he noticed a peculiar scratchy feeling in his throat, and near the back of his tongue, which caused him to cough, particularly when he took the recumbent posture, and on examining his throat he noticed on the back of his tongue a dark mass, which he attempted to wash off, and not succeeding pulled off pieces by a spoon, but they soon returning in the same location. He consulted a physician, who told him that nothing could be done, but to take something to relieve the scratching, which was Smith's cough drops. These always relieved him.

About five months ago the man had an acute infection which his physician diagnosed as la grippe, and gave him some internal medication, which I examined, and found to be cascara sagrada, which, he claims, removed the whole mass entirely. Three weeks after he noticed its recurrence, and two months ago he consulted me as to the relief of the irritation in his throat, which now the tablets refused to do.

On examination, I found a dark mass of a dirty brownish color, the broadest at the base of the tongue, in the region of the circumvallate glands, gradually tapering down to a point at the anterior one-third of the tongue, making the mass triangular, with its base to the base of the tongue, and its apex towards the tip of the tongue, being half an inch wide at its broadest part. On attempting to remove the mass, some difficulty was experienced, but I succeeded in pulling a few threads out, and examined them microscopically. I found that the mass was composed of a number of filamentous hairs, dark in color, having all the appearance of hornified epithelium, which refused to take the stain readily. There were very few other microorganisms to be found.

There was no treatment instituted in this case except a spray of orthoform to relieve the irritation.

Lingua nigra, or black tongue, brown tongue, as it is sometimes called, is hyperplasia of the epithelium of the papillae filaformae, which grow to such an extent as to be able to manipulate them, resembling wet hairs. This condition may at times be white instead of brown or black. The pathological change is a hornification of the epithelium. At one time it was thought it was a mycotic disease due to a glossified, which Dessois[1] and Sell[2] have demonstrated in between these hairs. Brosin[3] and Roth[4] claim its cause to be a microorganism which is so constantly situated in the oral cavity, but Schech[5] has found that very few microorganisms are situated in between these hairs. The color of these hairs is said to be due to the aged condition of the epithelium, and its hornification, a constant increase of the normally present pigment. It is accepted that this is a combination of hyperkeratosis and pigmentary growths.

The symptoms: There is usually a tickling sensation about the tongue and throat; dryness,

and bad breath. The sensation of a foreign body in the mouth. Objectively, one sees these hairs start from the region of the circumvallate papilla, broad and gradually tapering toward the tip of the tongue. You can raise these hairs upwards, and they remain in this position until brushed down by the roof of the mouth or otherwise.

The etiology: It is said, that chewing, smoking and other irritants of the mouth are the cause of this growth, but they have been found in women and children, who are not addicted to such habits. Gastro-intestinal disturbances have been blamed for this affection, and I wish to state that this patient while given cascara sagrada claims that following its administration and action the mass entirely disappeared, only to return within three weeks. Acid reaction of the saliva is another cause. Diabetes, cancer, and trophoneurotic changes are other etiological factors given.

The diagnosis is not difficult, and must be made from other discolorations, as, first, colored foods and remedial agents; second, pigmentation, as in morbus Addisoni, xanthelesma and argyrosis.

The treatment: The local application of a ten per cent alcoholic solution of salicylic acid, or ten per cent bichloride of mercury solution. Schech curettes these masses off. Brosin curettes and applies strong astringents. Unna[6] applies a layer of cotton saturated with peroxide of hydrogen over this mass, and allows the tongue to be pressed gently against the hard palate for a half an hour. In this way he gets rid of the pigment, and softens the masses down so that they do not irritate. He also recommends the frequent application of a ten per cent resorcin ether with five per cent collodion. He also recommends the use of a weak salve of salicylic acid, the masses having previously been soaked for a half an hour in the soap spirits of Hebra.

Discussion.

David Lieberthal: I wish to thank Dr. Beck for the opportunity of seeing this case, and also the Society for permitting me to discuss it.

Affections of the tongue are equally interesting for us dermatologists as to you, gentlemen. We have frequent opportunity to observe such cases, considering that some affections of the skin are complicated by lesions of the mouth.

I would like to call attention to the fact that filamentous projections which are well pronounced in this are absent in some cases, especially in those of children. The affection then presents an uneven, slightly elevated, pigmented area. This is an important point I wish to add to the differential diagnosis outlined by Dr. Beck. As long as the filaments are present the diagnosis naturally offers no great difficulty; but if they are absent, the diagnosis is more difficult. We have to consider the lesions of the tongue in lichen planus, and a certain form of mycosis linguae. Lichen eruptions of the tongue are white or slate-colored, round, oval or streak-like, mostly with a smooth surface; besides, there will be found lesions of lichen on the skin. Mycosis limited to the tongue seems to be quite rare. A case which I observed presented semilunar plaques of grayish yellow color, not raised. These were located anteriorly to the circumvallate papillae and extended in streaks anteriorly and laterally in fissures of the tongue. Scrapings from these areas revealed the presence of a leptothrix.

With reference to the treatment of lingua nigra, I do not think that permanent cure was derived in any case from medical or surgical treatment. In as much as cutaneous hyperkeratotic lesions yield to the X-Ray, I should suggest to Dr. Beck to employ the X-Ray in his case.

Dr. Beck (closing the discussion): This case practically has had no treatment. I am going to treat these lesions with the cautery, and if that fails I may use the X-Ray.

Perforation of the Drum-head by Tampons.

J. Holinger: The patient whom I show you is 30 years of age. For about eleven weeks past, he has been suffering with inflammation of both middle ears which was treated by his family physician by means of tampons. When he came to my office, both were stopped with cotton, a piece of which had been pushed entirely through one drum into the middle ear.

Note particularly the left ear, in which the drum-head shows the consequence of this treatment. There is an oval perforation; the mallet is directed inwards; and this upper part of the drum-head (illustrating) was forced inward. On the lower margin, absolutely nothing of the membrane remained but now it begins to form nicely for you can see it presenting a red granulating edge. Still, the upper part is adherent to the promontory and I do not believe that it will be possible to put it back again. The handle of the mallet is entirely luxated inwards. The whole condition is simply the result of stuffing the ears.

The disagreeable feature in this case is that the hearing for whisper is only 20 centimeters in one ear and 40 in the other. It is wholly impossible for the patient to follow any conversation.

That these consequences are due not to the inflammation above but to the treatment is in my judgment clear for the following reason:

If the position of the mallet were the result of traction by the **tensor tympani** muscle alone, there would be a protecting fold of the membrane from the short process backward and forward. This fold is absent and the membrane forms two dome-like cupolas in front and back of the handle of the mallet. And also the fact that a pledget of cotton had to be removed with considerable force from within the middle ear, and I do not see how to escape the conclusion that the pathologic condition as well as the diminished hearing is due to the packing of the ear.

This treatment is widely accepted and taught in the colleges, but this case shows how it is sometimes carried out in practice. Would it not be much wiser to use the safe, and simple treatment of Betzold, viz.: syringing with warm boric-acid solution. This will give quicker and better results.

Norval H. Pierce presented a case of **Exotic Sound in Both Ears,** which could be heard through the otoscopic tube, and could be auscultated over the cranium, the mastoid, or occiput.

John A. Robison read a paper entitled **Skiagraphic Diagnostic Fallacies,** illustrated by a case.

Several months ago I purchased an X-Ray outfit for diagnostic and therapeutic purposes. Having been an amateur photographer for some years I thought I could make satisfactory skiagraphs after some experience. My aim was to see to what extent skiagraphy would be valuable as a means of corrobatory diagnosis in internal medicine. And I thought it might provoke some expression from the members of this Society if I would relate some of the errors I encountered.

First. The development of skiagraphic plates is more difficult than the development of the ordinary plates. You must eliminate all sources of error intrinsic in the plate, the developing fluid, and the manipulation of the X-Ray apparatus. I found quite a number of the plates would develop more rapidly in certain spots than others. In one instance I was shown a plate where a dark spot over the region of the left kidney had been pronounced to be a renal calculus. I took two skiagraphs of this patient, and was unable to find the shadow. I persuaded the patient to secure another skiagraph from the first operator, who subsequently acknowledged he did not obtain the same result in his second plate. I have seen skiagraphs of lungs where the light areas did not exist in subsequent plates.

In the development of skiagraphs we have not the contrast of light and shadow as in ordinary photography. The entire plate in the developing fluid speedily becomes dark, and it is easy to overdevelop the plate, and obliterate the contrast between the lights and shadows. And it is to secure the proper contrasts that experience in the exposure of the patient to the X-Ray becomes necessary. And it is only possible to secure good results by experience, and in medical skiagraphy the interpretation of the results can only be truthfully made by a physician, no layman having the necessary pathological knowledge to enable him to interpose the shadows cast by various pathological conditions.

But granted that the technique has been perfect, can errors ensue from the wrong interpretation of the skiagraph. Such was my experience in two cases.

Case 1. Mrs. S., aged 66, was first examined by me July 14, 1902, and I diagnosed a stricture of the oesophagus probably cancerous. The cervical glands, especially the left, were enlarged and painful.

The patient complained of dyspnoea on exercise, a rapid pulse, palpitation of the heart, and occasional haemoptysis.

There was a systolic murmur at the base of the heart, and the left radial pulse was less in volume than the right. The sphygmographic tracing shows the impulse of the heart is weakened, and the arterial recoil is deficient. also, that the heart intermits.

Antemortem I believed from the symptoms, and physical signs, that an aneurism of the aorta might exist with the cancer of the oesophagus. Consequently I made a skiagraph which apparently shows quite a large shadow commencing about the right third rib curving to the right and upwards as high as the sternal articulation of the clavicle to the left and downwards to the lower border of the first rib, simulating the shadow cast by an aneurismal tumor, but lacking when viewed by the fluoroscope expansile movement.

December 12, 1902, the autopsy revealed carcinoma of the oesophagus extending from the level of the superior opening of the larynx to the lower level of the thyroid gland. The thyroid gland was considerably enlarged, the right lobe being 5x3 c.m., the left 6x4 c.m., and cartilaginous in structure. The posterior part was invaded by tumor tissue, the tumor extending from the posterior part of the right lobe of the thyroid to the oesophagus which it encircles.

Evidently the skigraphic shadow was caused by the tumor tissue of the thyroid gland.

Case II. Was a case referred to me for a skiagraph by his brother, a physician.

The patient was a robust man aged about 35, who sustained an injury to his right knee by a fall. Shortly after the injury the knee became swollen, painful and somewhat reddened. It was immobilized in a plaster of paris splint, and the pain was relieved, but when the splint was removed the physician was surprised to see that the swelling had increased, and the patient was unable to use the knee.

This skiagraph was taken, and it seemed to us that there must have been an inter-articular haemorrhage. The knee joint was aspirated and grumous blood obtained—Iodoform—subsequent operation: **Sarcoma.**

Discussion.

E. Fletcher Ingals: I have not taken skiagraphs, but I have been using the fluoroscope for some time. I have noticed in two cases very deceptive shadows. Posteriorly, at the left of the third dorsal vertebra or thereabouts, in the first case I saw a rounded projection apparently from the aorta projecting about three-quarters of an inch to the left and extending about 1¼ to 1½ inches up and down. I supposed this was an aneurysm. The man was sixty-odd years of age and presented many of the symptoms of atheroma of the aorta. When I saw this shadow I felt confident that he had beginning aneurysm, and I so told the physician who was with him. He died shortly thereafter, and post-mortem examination did not reveal any aneurysm, although the atheroma was marked.

In another case I observed a similar shadow, but I recollecting the case just referred to did not make the same diagnosis. I do not know what has become of that case, as I have not seen him since. Such a shadow is likely to lead one into error, and I have not been able to satisfy myself what causes it.

Wm. L. Ballenger: Having had some experience in photography, I can fully appreciate the difficulties of developing plates from the X-Ray machine. In taking a picture of a land-

scape, where you wish to show a cloud effect, if the development of the plate is carried beyond what it should be, the clouds will disappear, leaving simply a blank white space for the sky. The same thing occurs if the exposure of the plate is too long. If, in taking a photograph, it is exposed longer than it should be, there will be a white sky instead of a clouded sky. This same principle can be applied to the antrum of Highmore. If there is a light shadow from the diseased condition present, and the light put into the mouth is too strong, it will dissipate the shadow and make this case appear normal, whereas the proper illumination would show the shadow.

This paper is an interesting one, and is of great technical value in this sort of work.

Three things are essential, namely:

a. Normal exposure of the plate.
b. Normal development of the plate.
c. Normal printing and toning.

Joseph C. Beck: In connection with the cases mentioned by Dr. Ingals, I would like to relate the case of a man who came to me with a constant irritation of the throat, associated with coughing after eating. He would cough until, he said, most of his food would come up. I examined him carefully and could not find anything about his throat or in his esophagus. I witnessed this symptom, after a meal that shortly after he ate he would cough until particles of food which he had eaten came up. Further examination disclosed the presence of Meckel's diverticulum. X-Ray pictures were taken, which showed a dark area in the region of the pharynx at the junction with the esophagus, when the diverticle was filled with food and clear when he had coughed it out.

Dr. Joseph C. Beck reported a case of **Marked Hypertrophy of the Inferior Turbinated Body.**

This specimen is a true hypertrophy of the lower turbinated body from a patient suffering with chronic sinusitis on both sides, with marked polypoid degenerated conditions in the upper part of the nose. Polyps were frequently removed and the anterior end of the middle turbinated body. Curettage repeated. The patient was not able to breathe through the nose after all these repeated operations. Postnasally, one could see the posterior nares completely filled out by two large pinkish masses which I made out to be the posterior ends of the inferior turbinated bodies. I concluded to remove the same, and put a hot snare (Gradle's) over the posterior end on the left side, and drew down on the mass tightly, turned on the current, but, perhaps fortunately, as the specimen shows, as the entire turbinated body is so markedly changed, the wire did not get hot nor would it cut the mass by the cold method. I could not disengage the snare very easily, and there came to my mind how Mueller, of Vienna, used to remove these masses, and so I attempted to do the same. I pulled forward with considerable force, and out came what you see. I expected some bleeding, but found this to be very little in amount. The wounded surface healed nicely; the bone was not exposed except at the lower end, and that, as said above, healed by granulations. The patient told me the following week that he, for the first time in six years, breathed through his nose and could keep his mouth closed. The other side was in the same condition, and I proposed to do the same operation. This time I prepared Krause's snare, but on pulling the mass forward it broke, and I succeeded in removing it in several pieces. One of these (the posterior end) I examined microscopically, and found it to consist of true hypertrophic tissue, abundant of connective tissue. The bleeding was more on this side, and the healing slower, but a fairly good result was obtained also.

An interesting point in this case was the double-sided true hypertrophy of the anterior part of the septum, which, when you looked into the nose, looked like two marked exostoses, which could easily be pressed in with the probe. I shaved them off flush with the septum.

I have another case under my observation of double-sided sinusitis with this same enlargement of the inferior turbinated bodies, and I believe there is a connection between the sinusitis with polypoid degeneration and these extremely large hypertrophic turbinated bodies. In this latter case I have repeatedly tried the use of the cautery, with negative results.

Dr. John Edwin Rhodes exhibited a **Tonsil Punch Forceps.**

John Edwin Rhodes: It is occasionally impossible to thoroughly remove a tonsil with the snare or the guillotine. Especially is this true with regard to those that have a broad base, do not project well beyond the pillars of the fauces, or are very irregular extending high up in the angle between the pillars or low down in the lateral wall. It is sometimes found that the operation has not removed the tonsil completely and that masses which have not been engaged in the loop of the snare, or the fenestrum of the guillotine still remain. In other cases, where excision seems desirable, neither of these instruments will do the work satisfactorily, from the impossibility of getting hold of the tonsil, and we wish a method of removal that is available either under a general or local anaesthetic or even without anaesthesia, in some cases. Without criticising the use of scissors of various forms, or the dissection with a cautery knife, I prefer, in many cases, for these conditions, a punch I have devised for the purpose, and which I have used a good many times since, with the greatest satisfaction.

This punch forcep is a modification of one shown me by Dr. Bouffleur which he designed for operation on the prostate. The curves of the handles and jaws are somewhat similar to the Loewenberg forcep, for operation on adenoids. The cutting edges of the forcep are so curved that it would be difficult to get the pillars of the fauces within its grasp, or to dissect deeply, beyond the floor of the tonsil. Only those tissues seized within the jaws of the forcep are removed. The handles are six and one half inches long from the screw lock, and curved outward from the shanks of the cutting jaws. The shanks of the jaws stand at an angle of fifty-two degrees outward from the handle shanks and are curved to an arc included within eighty-four degrees of a circle of one inch radius. The

cutting edges extend three-fourths of the length of the perimeter of an ellipse, the major axis of which is 59-128 inches and whose minor axis is 43-128 inches. They approach each other at a slight angle, first touching at the distant end of the conjugate diameter as a center and then gradually closing both edges, which action produces a perfect shearing cut. They were made for me by Sharp & Smith, of this city.

Dr. Joseph C. Beck read a paper on **Salpingoscopy.**

Salpingoscopy is a term given by Valentine to the method of examination of the ostium of the Eustachian tube and the naso-pharynx, by means of his salpingoscope, which is nothing more or less than a small cystoscope. Hirschmann claims the priority of this instrument, and calls it the endoscope, for the purpose of examination of the nose, especially the ostia of the accessory sinuses. Reichert examines the antrum by a similar instrument, and calls it the antroscope. The salpingoscope, as you see it, without going into further detail or description, consists of a tube with an ocular piece at the proximal end and a prism mounted by a light with a small curve on the distal end. The introduction of the instrument is the same as the Eustachian catheter, being thoroughly cleansed and the prism covered with lysol or soap, so as to prevent steam from covering it like a laryngeal mirror. The distal end is now situated in the naso-pharynx, and the curve or the position of the prism is indicated by the little white button on the proximal end. The current is turned on or off by the little switch on the handle of this instrument.

The technique of examination is as follows: Place your eye to the eye-piece and make contact by turning on the switch, and you will find if the button (white) is situated towards the lateral side you will see the vicinity of the tube illuminated, and by moving the instrument gently forward and back, you get the outline of the ostium tubis with its anterior and posterior lips, and the dark shadow of the opening. It must not be forgotten that we are looking through a prism, and therefore the object is inverted, or, rather, an inverted image. Also, that parts situated close to the prism appear very large, while those away extremely small, as Valentine shows in his picture, that is, the velum of the palate very large and the larynx minature-small. However, the lateral wall of the post-nasal space which we are now examining is not markedly changed in size, because its distance is about medium from the prism. One may examine both openings of the tubes through one nostril; however, as said above, one will look very much smaller than the other. Cocaine is not necessary any more than by passing a catheter, that is, in extremely irritable, hypersensitive subjects.

When I first saw the article of Valentine, published in the Archives of Laryngology, I was fascinated by his writing, for he was so positive in his statements, and lucid in his description, and consequently I lost no time in obtaining the instrument, and used it for a short time, about two weeks. I came to the conclusion that it was over-rated, or perhaps I did not know the proper technique, or what I should be able to see. I therefore offered the instrument to Dr. Gradle, to use it in his office for a period of a week, and give me his opinion, perhaps instructions. I hope he will tell us about it tonight. At that time he would not express himself. I started anew to use it, and now for the past six months have examined in all a hundred and twelve cases of different pathological conditions, as well as normal, and have come to some fair conclusions. The various conditions I used this instrument for examining were as follows:

1. Acute salpingitis, that is, particularly following and associated with an acute rhinitis, where the patient complained of a fullness in his ear.
2. Acute rhinitis without the symptom of fullness in the ears, including hay fever.
3. Acute otitis media, non-suppurativa.
4. Acute otitis media suppurativa.
5. Chronic otitis media non-suppurativa.
6. Chronic otitis media suppurativa.
7. In cases where I could not place properly the Eustachian catheter, or inflate with satisfaction.
8. In the use of a bougie.
9. Adenoids.
10. Chronic post-nasal catarrh.
11. Marked hypertrophies of the posterior ends of the inferior and middle turbinated bodies.
12. Atrophic rhinitis.
13. Examination of the ostium maxillarus in sinous disease, where the anterior half of the middle turbinated body had previously been removed.
14. The roof of the nose, in the same conditions.
15. Antrum of Highmore through the opening of the jaw.
16. The act of swallowing and speaking in the healthy subject and in one with paralysis of the soft palate.
17. Tubercular and syphilitic laryngitis. Also normal larynx.

I wish to say here that the larynx may be examined by means of this instrument, being situated in the nose, the prism turned downward, and while the patient is instructed to breathe freely through the nose, one can see the chink and sometimes the vocal cords. Again it may be used in the mouth, as Valentine and others have used it, particularly in young individuals, and get a much larger and clearer image of the larynx.

To report each individual case of these above named conditions would be very interesting, but altogether too lengthy, and I will therefore report briefly and say one can learn a great deal by the aid of this instrument after he has used it a while, having accustomed himself to the method of examination, and the conditions he is examining. In the first place, I found in acute salpingitis marked swelling of the mucous membrane of the ostia. Thick mucus in the openings of the tubes, which I could see dislodged by the act of swallowing. I have seen pus coming down from the tubes in a case of chronic suppurative ear, where I had done a previous ossiculectomy. Adenoids, as Valentine

calls attention to, look small, but you can see their divisions very clearly, and thick secretion on and in between their spaces. I have not found one case of adenoid tissue in the opening of the tube, but two cases in which the masses were pressing on the posterior lip of the opening of the Eustachian tube.

In cases of chronic catarrhal otitis media I could find nothing of great difference from an ordinary chronic post-nasal catarrh; where the patient complained of a cracking sensation in swallowing, I imagined I found some mucus in the openings of the tube. In one case I saw a large blood vessel on the posterior lip of the ostium tuba. The catheter as well as the bougie can easily be seen in position, the latter while situated in the tube, removing the metal catheter, and in that way exposing its situation in the Eustachian tube to the salpingoscope. The mulberry appearance of the posterior ends of hypertrophies of the turbinated bodies; in fact, any part of the nasal cavity, are very difficult to make out, and I believe this is due to the already stated fact that the prism is so closely situated to the structures that they look so large as to impossibly interpret them as what they are. The examination of the ostium maxillaris after the middle turbinated body has been removed is also of very little value for the same reason given above. However, the examination of the ostium through an opening in the upper jaw is very easily made out. I could see pus and polypoid masses in the antrum.

My conclusions are the following:

1. That it is an aid in diagnosis worth while applying.

2. It is absolutely necessary to familiarize yourself with the technique for a longer time, and learn the comparative sizes of the structures.

3. That its use is principally of value in the naso-pharynx in examination of the ostium tuba.

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Dr. George E. Shambaugh gave a lantern slide demonstration of the blood vessels of the labyrinth of the ear. He also exhibited microscopic preparations.

Dr. F. Gurney Stubbs read a paper entitled **A Modification of the Krieg Operation for Deviated Septum.**

The indication for operative interference of the septum narium in most cases is a lack of sufficient patulentcy of the nasal passages.

Posteriorly: Where there is more room laterally, even a considerable deviation or spur will cause no marked obstruction, for not only on account of the increased room, we also find there is a tendency for the turbinate to recede in a compensatory manner.

Anteriorly: The same degree of deviation or presence of a spur becomes of marked importance the nearer it lies to the anterior meatus. Here the nasal process of the superior maxilla presents an unyielding resistance to any compensatory shrinking, and consequently all manifestations of obstruction become accentuated.

Hence it is that most operations on the septum have to deal with the triangular cartilage, and if there the major proportion are confined to the cartilage itself.

Consequently, it is always worth considering any procedure involving the operation of these parts, which is calculated to facilitate the ease of operation, hasten the period of repair, and leave less sequelae.

Perhaps the simplest method proposed is to make a permanent perforation, removing in part, or in its entirety, the deviation by either a scalpel or so-called "punch" forceps (1); Next comes the method of incising the septum in one or several directions and with force attempting to bend the offending part toward the wider naris and hold it there till healing takes place; for example, the Asch (2), Rethe (3), and Gleason (4), operations.

A more elaborate method includes those operations which propose to remove part or all of the cartilage and bone involved without incising both mucous walls of the septum. To this method belong the procedures of Ingals (5), Petersen-Hartmann (6), and Krieg-Boenninghaus (7).

In the Ingals operation only a triangular section of the deviated cartilage is removed, thus making merely a small channel of permeability for the obstructed naris.

The Krieg-Boenninghaus operation removes not only all the cartilaginous, but also all bony parts entering into the deviation. An incision of the muco-perichondrium is made perpendicularly and horizontally on anterior and superior lines of deviation, the same is now separated on both sides by means of an elevator and removed by scissors and forceps, with no attempt made to save the muco perichondrium on side of convexity.

The Peterson-Hartman operation attempts to prevent this sacrifice of the muco-perichondrium of the one side, which leaves a large surface bare of normal mucous membrane, to be healed over with changed epithelium. A flap of muco-perichondrium is made, dependent from above and corresponding to the size of cartilage to be removed. This is allowed to fall into place after operation, and does in a measure reduce the area of denuded surface, but on account of the difficulty in making the incisions and the large area exposed by shrinkage of the flap, it is not in much favor.

Freer (8) has suggested some modifications in the manner of saving the muco-perichrondrium and has devised a number of special instruments to assist in carrying this out. A triangular flap is made, the perpendicular incision being on crest of deviation, the horizontal joining this anteriorly on its lower end, and drawn forwards on its line of hypotheneuse—then with special knives a triangular area of

cartilage is removed, and through this window the remaining cartilage. Instead of removing what bony parts enter into deviation as in the Krieg-Boenninghaus operation, fractures by means of a chisel are made and these parts brought into alinement with Roe's forceps.

While I do not offer a new operation, I propose a different **point of incision** for the operation, and attempt to save all of the muco-perichondrium, removing cartilage and bone by the Krieg-Boenninghaus method.

After the usual preparation of field of operation, cocainize the mucous surface with either a 10 per cent or 20 per cent solution, injecting either a 5 per cent solution or a Schleich solution into muco-cutaneous junction of septum. With an ordinary scalpel an incision is now made perpendicularly along the entire anterior edge of the triangular cartilage on side of convexity, this being facilitated by drawing the fleshy part of septum sharply to opposite side. With a small flat, somewhat curved on the flat, perichondritome or elevator separate the muco-perichondrium over the cavity. Then, beginning at anterior edge of cartilage, do the same on side of concavity. The field of vision is improved by having the assistant, who stands behind patient to steady head, use one or two blunt hooks or retractors to open naris in place of a nose speculum. If desired, a stitch can be taken in fleshy portion of septum, which will include a strip of gauze. This will help to retract anterior edge of septum to opposite side. When both sides of cartilage are stripped, the mucous membrane generally balloons to opposite sides and exposes the cartilage in its entirety.

The cartilage is now cut out, preferably with a pair of Grunwald's alligator scissors. If more is desired to be removed, superiorly or inferiorly, it can be trimmed down with a pair of Krause's fenestrated cutting forceps.

Should there be a bony involvement in the deviation, continue the separation backward of the periosteum and remove the bone with a fenestrated cutting forceps, preferably those of Laurent.

If deviation involves only posterior half of cartilage, the incision in same can easily be made in front of convexity and muco-perichondrium separated only over concavity of deviation.

With all deviation removed, the linear incision can be stitched or not, as suits the operator, while moderately snug packing on both sides bring the muco-perichondrial walls firmly together and prevent an accumulation of blood between them.

In order to utilize this incision so far forward for those deviations situated farther back on septum, it is necessary to strip a part of cartilage which is not removed. But there is no danger in this, as it immediately adheres to mucous membrane on being again coapted. Thus the incision is maintained well forward, where it can be preserved from injury during operation and completely united afterwards. It is in a position, through which it is easier to work and allows of better control of instruments when working far posteriorly and a good view of field of operation.

Nor is its utility limited to deviations. All spurs on cartilage or on cartilage and bone can be removed without interfering with the intactness of the mucous membrane. Through this incision first separate the muco-perichondrium and then by means of a chisel, preferably a Hajek spur chisel, the spur can be cut off and removed through the incision by forceps; the mucous membrane is then coapted to the straight and smooth septum by packing the naris involved. Thus no subsequent crusting and granulation tissue has to be dealt with; for the nearer the anterior meatus the more frequently this unpleasant sequela accompanies loss of mucous membrane.

It is no longer necessary to defend the procedure of removing cartilage and bone of the septum. This has been done so well in the papers of the authors of the various operations and experience has proven the theory. I would say, though, that it is scarcely ever necessary to remove a strip of cartilage lying in apposition with the external bones and cartilages of the nose. And farther in the greater proportion of cases there is reformation from the perichondrium.

The following cases are illustrative:

Case I. Frank W., aged 33. Large hemispherical deviation of septum towards right side, involving most of triangular cartilage and with one off-shoot, running onto vomer. Incision at anterior edge of cartilage and removal of deviation. Two stitches taken. Time of operation, including preparation and cocainization, fifty-five minutes. Packing removed on 3d day, none being replaced. Stitches removed on 5th day, when septum was perpendicularly straight in median line and with healthy normal mucous membrane on both sides.

Case II. Charles S., aged 12. Left nostril completely occluded with a cartilaginous deviation, while the anterior edge of cartilage projected one-third of an inch beyond the median line to right, drawing extreme tip of nose with it. Under cocaine anaesthesia, anterior half of triangular cartilage was removed, including upper anterior angle, both straightening the tip of nose and removing deviation. Time required, forty-five minutes. In spite of the patient's youth, he stood the operation with scarcely a complaint till almost through, when reapplication of cocaine allowed completion.

Case III. Henry E., aged 35. Large horizontal spur or ecchondrosis of left side of cartilaginous septum, appearing in external meatus and extending backward over one inch, projecting outward across naris. Usual incision and separation of muco-perichondrium, and then, with a Hajek spur chisel, spur was cut flush with balance of septum and removed with rat-toothed forceps. One stitch was taken in incision and small gauze packing inserted to hold muco-perichondrium in apposition with cartilage. Gauze removed on third day, stitch on fifth day, with a perfectly normal, unbroken mucous membrane to be seen on a straight septal wall.

Case IV. Peter J., aged 29. Unreduced fracture of nasal bones from injury when child, with resulting "saddleback" nose. Deviation of cartilaginous septum completely blocking left

naris. On right side of septum a large horizontal spur involving cartilage and bone, beginning anteriorly where deviation originates and so large as to half close right naris.

Through the usual incision cartilage removed so as to entirely and thoroughly restore left naris. Then through same incision the perichondrium and periosteum over spur on opposite side was elevated and spur cut off with chisel and removed with forceps. Both sides packed with gauze and no stitches taken. Time of operation, 50 minutes. Packing removed on third day and replaced by fresh, which remained two days longer. On tenth day corrected "saddleback" depression with parafin injection, when the septum was shown with intact normal mucous membrane and all nasal obstruction completely removed.

I think these cases are sufficiently demonstrative of the utility of this line of procedure in such septal operations to claim for it:

1st. Shortening of time of operation.

2d. Better command of field of operation.

3d. Less hemorrhage, both at time of operation and secondary.

4th. No flap that can be injured during operation.

5th. Preservation of entire intact mucous membrane.

6th. A resulting straight and even septum.

7th. Need of but few instruments, and these not necessarily specially constructed for this operation.

8th. Should mucous membrane be punctured on side of concavity a perforation does not follow.

9th. Shortening of time of repair.

10th. Obstruction of naris satisfactorily removed.

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Chicago Surgical Society.

Regular meetings held in Schiller Hall, the first Monday of each month from October to June at 8 p. m. Membership —.

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A regular meeting was held December 7, 1903, with the president, Dr. E. Wyllys Andrews, in the chair.

Dr. Wm. M. Harsha reported three cases.

1. **Keloid Treated by X-Rays.** The patient was a young man, 18 years of age, with a small growth behind the right ear, which had existed for ten years. Five years ago it grew to the size of an ordinary marble. It was excised. In three or four months the tumor was as large as ever, and finally grew to be twice the size it was formerly. Histological examination showed the characteristic formation of keloid. The growth was gradually becoming smaller and smaller under X-Ray treatment, so that at present it was only one-sixth of the size it was when treatment was begun.

2. **Pancreatic Cyst.** The second case was one of pancreatic cyst in a man aged 29. The cyst had attained the size of a large cocoanut, filling the half of the left side of the abdomen. Fluctuation was distinct; there was no temperature, loss of weight or other disturbance. Resonance could be made out above and to the left side of the tumor. An incision was made at the site of the scar from a former operation; the cyst wall presented, and was followed upward to find the colon above and over the front of it, extending to the pancreas. One-half gallon of fluid was evacuated. The specimen was a thick, turbid fluid of a reddish-brown color, containing thicker grayish-brown mucoid masses. On standing it deposited a grayish-brown sediment in abundance. The cyst was drawn up into the opening in the abdomen and incised. The cyst wall was one-eighth of an inch thick. An effort was made to detach the cyst wall proper from the peritoneum, but this was so formidable that the operator was content to stitch the edge of the opening to the parietal peritoneum. A large tube was inserted. This kind of drainage has since been continued. The large cavity of the cyst has gradually diminished in size until the present time. Patient made an uninterrupted recovery. A resume of the literature of cysts of the pancreas was given.

3. **Actinomycosis of Jaw.** This patient, a man, 50 years of age was referred to him with a probable diagnosis of sarcoma of the jaw. The patient had a swelling of the size of a hen's egg at the angle of the jaw on the right side. Actinomycosis was suspected, operation advised, and performed. Microscopic slides showed the characteristic ray fungus in the pus, but not in the tissue. The patient was entirely well.

L. L. McArthur narrated a case of pancreatic cyst, and said the treatment which had given

the best results, though not the lowest mortality, had been total ablation of the sac.

A. E. Halstead inquired why the cyst was not enucleated in Dr. Harsha's case?

Dr. Harsha replied that the cyst at the first operation contained two and a half gallons of fluid, and was so widely adherent that it seemed almost impossible to enucleate it.

Dr. Halstead mentioned two cases of pancreatic cyst that had come under his observation. In one case the wall was extremely thin. The cyst was opened and drained. In the other the cyst wall was thick, and the cyst contained possibly two quarts of fluid. It apparently grew from the tail of the pancreas, because when he removed the cyst a piece of the pancreas came with it. He thought in the majority of cases these cysts could be enucleated, and if care was taken in separating the cyst wall from the retroperitoneal tissues, particularly from the large vessels, like the aorta, there was very little trouble. Both patients made good recoveries.

Dr. Bevan asked whether Dr. Harsha had used iodide of potash in his case of actinomycosis.

Dr. Harsha replied that he had given thirty or forty grains, three times a day, and the patient took it for six weeks.

J. A. Ochsner stated that in several cases in which keloids had been excised and the condition had gotten worse after excision, the improvement was very marked following the X-Ray treatment. In one case the keloid diminished to a very slight thickening. He urged that before removing any keloid now one should treat it thoroughly with the X-Ray.

Xanthoma Infantum.

Louis A. Greensfelder reported a case of xanthoma infantum in a boy, aged 10. The affection dated back as far as the patient could remember. The only manifestations of the disease were found on the cutaneous surface and the tendons, chiefly the extensor digitorum communis, extensor hallucis longus, and tendo-Achilles. On the anterior aspect of the chest was a small pedunculated growth, slightly umbilicated, which is sometimes confused with beginning xanthoma, but this was molluscum contagiosum. The symmetry of the lesions was quite striking. A tumor on the right arm had been removed; a tumor involving the right buttocks was characteristic of xanthoma. There was a tumor of the tendo-Achilles on both sides.

Carl Beck mentioned a case of xanthoma in which he had used electrolysis with satisfactory results.

Conservative Surgery in Crushing Injuries of the Arm.

Daniel N. Eisendrath reported this case as an example of how one could save a member with perfect primary asepsis and the use of conservative methods.

He also reported a case of ulcer of the leg following traumatic thrombo-phlebitis of the lower extremity.

Penetrating Wounds of the Abdomen.

M. L. Harris read a paper on this subject, in which he reported 16 cases, with 3 deaths. Case 1 died quickly from rapid profuse internal hemorrhage before the source of the hemorrhage could be discovered and controlled. It might, therefore, be excluded. Case 5 might also be excluded, he said, as death was due to shock from injury to both lungs and pleurae and to the spinal cord. Excluding these two cases, there were 14 remaining, with but one death, with eight perforations involving the sigmoid, small intestine and transverse colon, with death on the third day from peritonitis. While in Case 2 no injury to any of the viscera was found, still operation was imperative on account of hemorrhage. In Cases 9 and 10 neither injury to the viscera nor excessive hemorrhage was found.

It may be claimed that these cases would have recovered without operation, and this is undoubtedly true, but who could have foretold before the abdomen was opened?

The operation not only did no harm, but was productive of good, as the bullet which might have given rise to subsequent trouble was removed in each case. But excluding these cases, there were still 11 cases with perforations and hemorrhage in which operation was absolutely indicated, with but one death. Instead of the usual mortality rate of 60 to 70 per cent following operation, there were over 90 per cent recoveries. The reasons for this, according to the author's opinion, are chiefly two: First, immediate operation. All cases but one were operated on within three hours or less of the time of the accident. Second, drainage when the gastro-intestinal tract had been opened.

The question of drainage in this class of cases was thoroughly discussed at the meeting of the American Surgical Association in 1902, and the consensus of opinion was in favor of drainage.

In conclusion the essayist emphasized the following points:

1. In penetrating wounds of the abdomen there are absolutely no known symptoms which indicate injury to any of the viscera, except those noted above in connection with the urinary tract, stomach, and occasionally the lower bowel.

2. Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis.

3. To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed; therefore,

4. Every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment, in order to anticipate the advent of peritonitis.

5. No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors or the analysis of recollected intraperitoneally injected air or liquids.

6. It is essential to examine systematically the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body.

7. Whenever the alimentary canal has been perforated, suitable drains should be placed

either through the operative incisions or counter-incisions, as may appear best suited to the individual case.

E. J. Senn reported the case of a woman who fell to the ground, striking on the buttocks. This happened about six o'clock in the evening, after she had partaken of a hearty meal. She retired without any symptoms seemingly. At twelve o'clock that night she was taken with violent pains in the abdomen. He saw the case the following day in consultation. An operation was advised, consented to, and performed. A perforation was found in the lower portion of the jejunum about the size of a small finger-nail. This case showed how there might be a severe injury without immediate symptoms, although he thought the mucous membrane in this case might have protruded in such a way as to have closed off the general peritoneal cavity. He urged early and prompt operation in all cases of perforating wounds of the abdomen.

Arthur Dean Bevan said he was impressed with the reports of the surgeons of the Transvaal war and by the reports of the surgeons during our late war with Spain. He thought these reports could be relied on. In regard to wounds of the stomach, the majority of cases recovered which were not operated upon; a large number of those operated upon died. This statement would not hold good, however, in regard to penetrating wounds of the abdomen in general. There were more recoveries after wounds of the stomach than after intestinal wounds. Where it was possible to do an aseptic operation inside of two or three hours, there could be little doubt that operative treatment should be employed, and he thought the results obtained by Dr. Harris in his cases supported that statement. The conclusions of Dr. Harris, however, should be restricted to civil practice.

L. L. McArthur thought emphasis should be placed upon prompt interference under such ideal conditions as would obtain in hospital practice. In the cases cited by the essayist there was undoubtedly a perfect surgical technique in the way of antisepsis and asepsis, and which was ideally carried out. Dr. Harris had everything at hand and a corps of assistants that rendered it possible for him to invade any part of the abdomen boldly, freely and safely. These conditions, however, did not obtain in many cases.

He was not inclined to believe that every case of perforating wound of the gastro-intestinal tract required drainage, but that the decision should be made upon the conditions found, through the escape of infective material or not, inflammatory reaction in the peritoneum or not. Certainly he thought it should be as safe to close some of these abdomens as to close, for example, the last two perforations he had had, in which the typhoid stools filled the abdomen in each case, and yet washing it out with salt solution and closing the abdomen, both of the patients recovered.

D. W. Graham thought the essayist had been unusually fortunate in getting his cases early and under favorable circumstances. He thought cases had been lost by not draining, and believed many of the good results obtained by the essayist were due to drainage. Hereafter, in practically all such cases he thought he would drain.

S. C. Plummer narrated a case of stab wound of the abdomen which was inflicted about two inches above and to the right of the umbilicus, with a small portion of the omentum protruding through it. The wound was enlarged and through it an exploration was made, but no injury found to any of the viscera. The exposed portion of omentum was ligated off, and the patient made an uneventful recovery.

He narrated a second case of bullet wound. This patient died from hemorrhage.

John E. Owens said that it was his practice in penetrating wounds of the abdomen to follow the principles laid down by the essayist. The mortality was greatest among those cases in which operations had been delayed. In cases that were operated on early, before the advent of peritonitis, the mortality was very much less.

Dr. Harris, in closing the discussion, said his remarks applied entirely to civil practice. However, he thought the subject of the treatment of wounds in military practice was very much confused. Surgeons knew the great disadvantage under which the military surgeon labored, and the difficulty of getting patients early for operation. The secret of success in these cases was early operation.

James M. Neff exhibited for Dr. John B. Murphy a specimen from a seven months' abdominal gestation, removed thirteen years later.

Polycystic Kidney.

Arthur Dean Bevan showed a large polycystic kidney. In this case the clinical symptoms were those of pain on the right side in the kidney region. The man had considerable hemorrhage and secondary anemia from it. The usual incision was made and the mass exposed and removed. The patient made an uninterrupted recovery, having regained his health, weight and strength.

Hypernephroma.

The second specimen exhibited was removed from a case of hypernephroma. An interesting feature connected with the case was that part of the mass projected into the pelvis like a polypus projects into the vagina, and was responsible for the free hemorrhage which was encountered in the case, with profound secondary anemia.

He had encountered seven or eight cases of hypernephroma, and said that this form of tumor was a common form of malignant tumor of the kidney. Furthermore, the most severe hemorrhages he had ever seen from the kidney had been in cases of hypernephroma.

Hypernephroma.

S. C. Plummer reported the case of a man, 68 years of age, who, fourteen months before operation, had a very profuse hematuria. There were practically no symptoms. Patient discovered the tumor accidentally one morning, and about this time he was beginning to show symptoms of malnutrition and weakness. The tumor was removed and proved to be a hypernephroma. There were several cysts connected with it.

A. E. Halstead, Official Reporter.

North Shore Medical Society.

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Vice President ..... Dr. Young
Secretary ..... Geo. E. Baxter

The North Shore Branch held its regular monthly meeting Tuesday evening, December 1, 1903, in Hipple & Clark's real estate office, 907 Wilson avenue. Vice Chairman Young presided. The following program was rendered: "Diplococcus (Pneumonia) Infection in a Wound in a Case of Appendectomy," L. L. Gregory; "Technic of Blood Examination," R. C. Whitman. The papers presnted were of great practical interest and were freely discussed by R. E. Green, Latham, G. W. Green, Baxter, Whitman and Gregory.

The Society accepted with regret the necessary resignation of Maximilian Herzog as chairman, who leaves in a few weeks for the Philippines to accept a position as Pathologist in the Bureau of Government Laboratories.

The meeting was unusually well attended and the prospect for the work of this Branch for the winter is very bright.

The Aux Plaines Medical Society.

The regular monthly meeting of the Aux Plaines Medical Society was held in the Phoenix Hospital, Maywood, Friday evening, November 27, 1903.

W. E. Potter of Oak Park read a paper, entitled **Leucorrhea as a Symptom.** Discussion opened by Charles Humiston of Austin and then became general.

Following the report of the district member of the organization committee of the Chicago Medical Society, the following sub-committee was elected: Dr. Glenn, for the district from 40th Street to Austin; C. E. Humiston for Austin; Dr. Lowey, for Oak Park; W. R. Livingston, for Maywood, and Fred H. Bates for Du Page County.

The banquet committee of last year was reappointed to make arrangements for the annual banquet to be held some time in December.

Southwestern Branch.

The regular monthly meeting of the Southwestern Branch of the Chicago Medical Society was held Tuesday evening, December 1, 1903, at 549 West 63d Street.

C. H. Lovewell read a very practical and interesting paper on **Fractures and Dislocations,** and a very general discussion followed, led by A. Davis.

The committee on banquets reported that arrangements had been completed for holding the annual banquet, at the rooms of the Englewood Men's Club, 63d Street and Harvard Avenue, and that tickets for the same are now on sale by the Secretary ta $1.50 each. Reception 6:30 p. m. and banquet at 7:30 p. m., Wednesday, January 6, 1904.

Chicago Medical Society.

At the meeting of the Council, Dec. 8, 1903, the following were elected to membership in the Society: Drs. Gustav J. Bergener, W. R. Cubbins, Abraham L. Freund, A. Ganzevoort, I. B. Hassin. F. J. Hellebrandt, Elmer L. Kenyon, Paul B. Kionka, Clifford S. Losey, J. W. Mott, Robert Peter, J. C. Pickard. Fred H. Pirnat, Gaetano Ronga, Hugh K. Schussler, W. N. Senn, Alex. C. Soper, Jr., William F. Stokes.

Douglas Park Branch.

The meeting of the Douglas Park Branch of the Chicago Medical Society was held in the offices of the Drs. Hardie, at the corner of Ogden and Millard avenues, on Monday night, December 14, 1903, at 9 o'clock.

Dr. Wilder read a paper on **Headache; Its Relation to the Eye and Its Significance in General Medicine.**

Clyde D. Pence, Secretary.

Medical Examiners' Association.

The regular annual meeting of the Chicago Medical Examiners' Association was held in the hall of the Chicago Medical Society, Schiller Building, on Tuesday evening, Dec. 22, 1903, at 8:15 o'clock.

Program.

1. The Pulse as a Guide for the Life Insurance Examiner, Robert H. Babcock.
2. Medical Examination for Life Insurance in Large Cities, L. Brackett Bishop.
3. Tuberculosis and Life Insurance, Thomas Grant Allen.

The Southern District.

The December meeting of the Southern District was held at the Vendome Hotel, 62d Street and Monroe Avenue, Thursday evening, December 17, at 9 o'clock.

Program.

1. The Treatment of Compound Fractures, F. A. Besley.
2. Malnutrition in Infants, F. X. Walls.

West Side Branch.

The regular meeting of the West Side Branch of the Chicago Medical Society was held in the Cook County Hospital, Thursday evening, Dec. 17, 1903, at 8:30 o'clock.

Program.

1. Cystitis in General Practice, Gustav Kolischer.
2. Some Chicago Orthopedic Geography, F. C. Test.
3. The Mercurial and Iodin Injection Treatment for Syphilis, L. E. Schmidt.
4. Subcutaneous Injuries of Abdomen, W. E. Schroeder.

We have been pleased to see physicians from other districts of the city at our meetings.

Northwest Branch.

Regular meetings are held the first Friday of each month at ———. Membership —.

Officers.

President ..... M. H. Luken
Vice President ..... Karl F. M. Sandberg
Secretary ..... Louis J. Pritzker
Treasurer ..... C. F. Roan
Councillor ..... E. C. Seufert

The Northwest Branch of the Chicago Medical Society held a regular monthly meeting on Friday, December 4, 1903, at its usual meeting place.

The scientific program of the evening consisted of a paper on **Rheumatism of the Appendix in Childhood,** by Frank X. Walls. The paper was discussed by Drs. Seufert, Berard, Grinker, Pritzker, Fischkin and Walls. On motion, the Society tendered Dr. Walls a vote of thanks for the excellency of his paper.

The following motions were carried:

1. That our annual meetings be held in June.
2. That the annual banquet be held in January.
3. That we retain our present meeting place another year for want of a better location.

Election of officers was next declared in order and, on motion, all the present incumbents were re-elected by unanimous vote of the Society to serve until June, 1904, or until their successors are elected.

The following By-Laws were adopted:

Article I.—Name.

This Society shall be known as **The Northwest Branch of the Chicago Medical Society.**

Article II.—Object.

The purposes of this Society shall be to bring into one organization the physicians practicing in the district bounded on the south by the Northwestern tracks, on the east by the Chicago river, on the north by Graceland avenue, and on the west by the city limits; so that by frequent meetings and full and frank interchange of views, they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health and material and social affairs; to encourage research, to settle disputes and adjust the ethical relations of its members.

Article III.—Membership.

All the members of the Chicago Medical Society, residing or practicing in the Northwest district as designated above shall constitute the membership of this Society.

Article V.—Executive Committee.

The officers of this Society shall consist of:

1. A President.
2. A Vice President.
3. A Secretary-Treasurer.
4. A Councillor.

Their duties shall be the same as are ordinarily delegated to such officers. They shall be elected by ballot at the annual meeting to serve one year or until their successors are elected.

Article IV.—Executive Committee.

The officers of this Society shall constitute an executive committee and as such shall transact the business of the Society, furnish places of meeting and arrange programs.

Article VI.—Meetings.

The meetings of this Society shall be held on the first Friday evening of each month except July, August and September.

The annual meeting shall be held on the first Friday evening in the month of June.

Special meetings may be called by the executive committee at their own discretion.

Article VII.—Notification of Meetings.

The programs, time and place of meetings of this Society shall be published in the official bulletin of the Chicago Medical Society.

Article VIII.—Papers by Invitation.

The executive committee may invite distinguished members of the profession or scientists, who are not members of this Society, at at any time on subjects germane to the profession.

Article IX.—Quorum.

Three members shall constitute a quorum.

Article X.—Amendments.

These by-laws may be amended or changed by three-fourths affirmative vote of the members present, at any regular or special meeting, provided that the proposed change had been announced at two different meetings.

Louis J. Pritzker, Official Reporter.

DuPage County has been organized by making it a branch of the Chicago—Cook County Medical Society. Dr. Fred H. Bates, of Elmhurst has been elected a member of the subcommittee. It is believed that the 41 members of the profession in this county will speedily come into line under this arrangement.